MATHEMATICS

Grade 4

TERM 1 2020

Lesson Plans

Acknowledgement:

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

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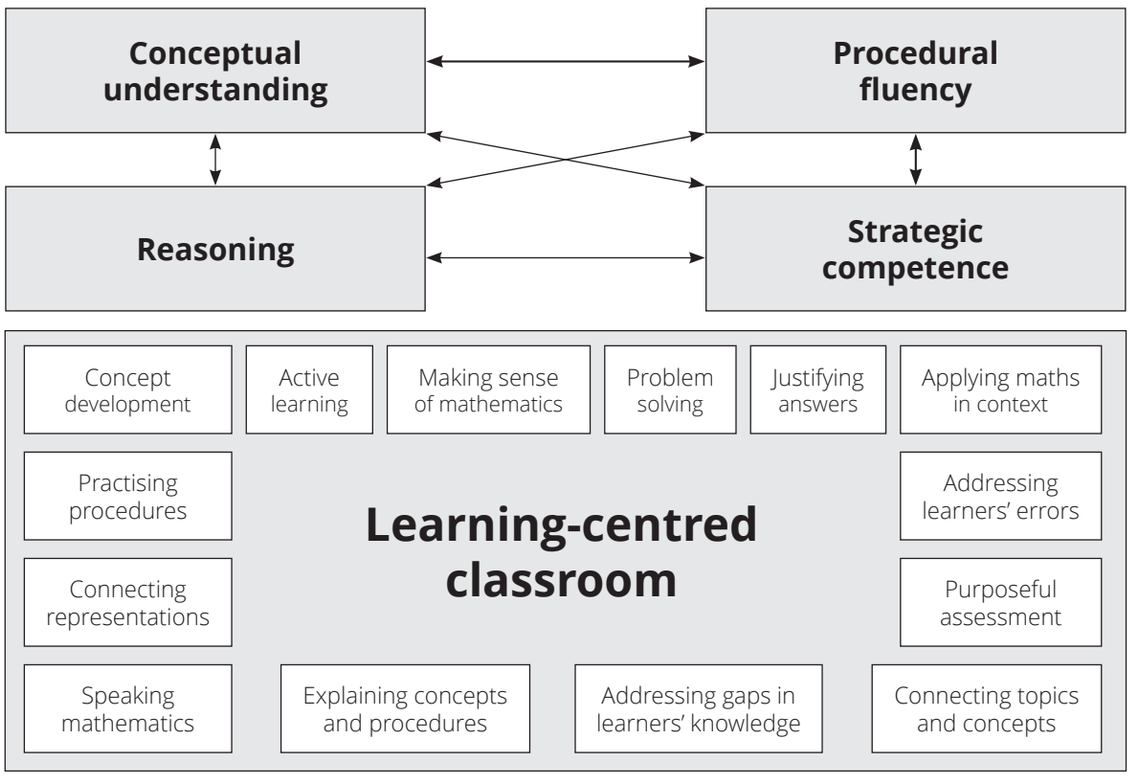
Teaching mathematics for Understanding (TMU)

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



The Framework proposes the steps that should be taken to bring about the transformation of mathematics teaching in South Africa. Mathematical examples of the dimensions of the framework can be found in the TMU Framework Document.

At the start of each unit, we provide examples of how the four dimensions of the framework are included in the lesson plans.

Teachers should strive to:	Brief description of what learners should do:	Explanation
- teach mathematics for conceptual understanding	**Understand**	Involves the learners' comprehension and understanding of mathematical concepts, operations, and relations
- teach so that learners develop procedural fluency	**Follow steps**	Involves developing learners' skill in carrying out procedures flexibly, accurately, efficiently, and appropriately
- develop learners' strategic competence	**Choose how to do it**	Involves the learners' ability to formulate, represent, and decide on appropriate strategies to solve mathematical problems
- develop learners' mathematical reasoning skills	**Think in mathematical ways**	Involves providing multiple and varied opportunities for learners to – the capacity for logical thought, reflection, explanation and justification

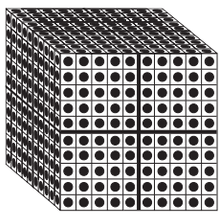
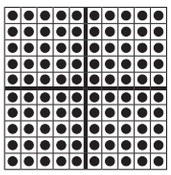
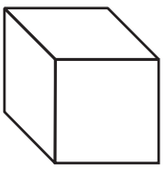
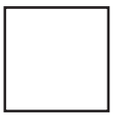
At the start of each unit, we provide examples of how the four dimensions of the framework are included in the lesson plans.

Summary of Mathematics Teaching Approaches

I. CPA (Concrete-Pictorial-Abstract) APPROACH

The Concrete-Pictorial-Abstract (CPA) approach helps learners to develop the concepts of numbers. The CPA approach uses several different representations for the concepts of numbers 1, 10, 100 and 1 000. For instance, the number '5' can be represented by 5 bottle tops (concrete objects), 5 circles (pictorial representations) and the number symbol '5' (abstract). By the time learners reach the Intermediate Phase, most should be able to work without the support of concrete objects or pictorial representations and should be working with abstract representations most of the time.

The following table shows the materials used in the TMU lesson plans. It is important to connect each representation to the other representations.

Number symbol	1 000	100	10	1
Number name	thousand	hundred	Ten	one
Base ten kit (manipulatives)				
Simplified pictorials (drawings) of the Base ten kit				

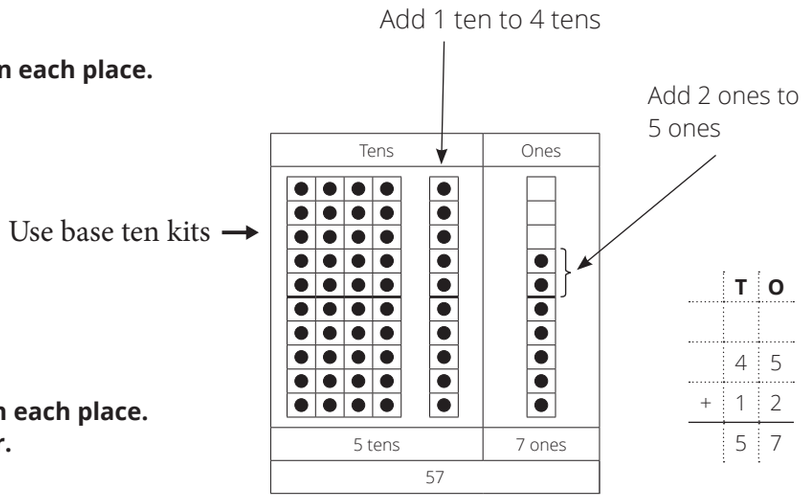
In the CPA approach, the following methods are important:

a. Column method using a base ten kit [CONCRETE OBJECTS] (Grade 2, 3, 4)

It is critical to show the connection between the place value table and the column method. In Grades 2 and 3, learners used base ten kits on a place value table.

1) 45 + 12

Step 1. Add bottle tops in each place.

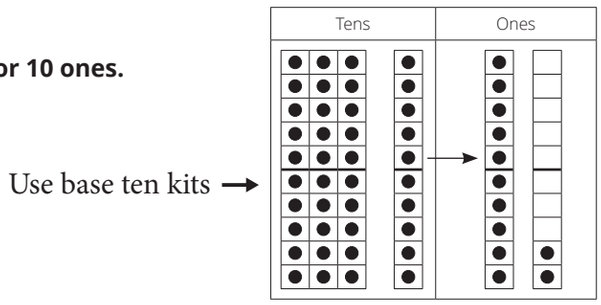


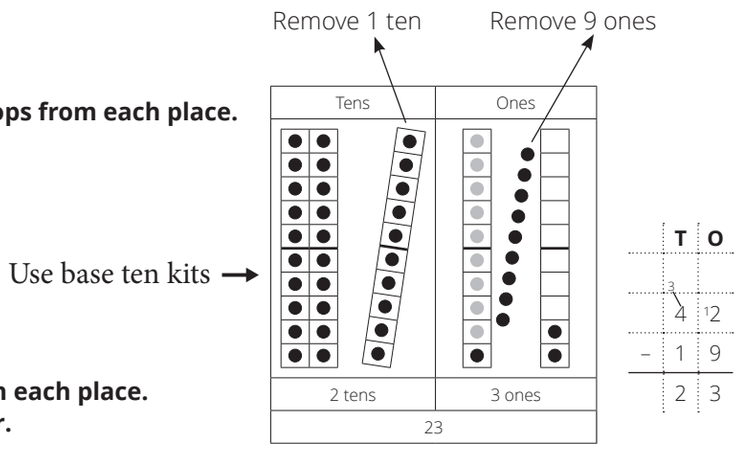
	T	O
	4	5
+	1	2
	5	7

Step 2. Write numbers in each place.
Step 3. Write the answer.

2) 42 – 19

Step 1. Exchange 1 ten for 10 ones.





	T	O
	3	
	4	12
–	1	9
	2	3

Step 2. Remove bottle tops from each place.

Step 3. Write numbers in each place.
Step 4. Write the answer.

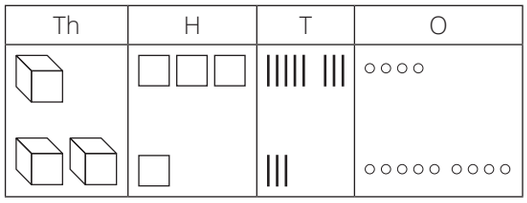
b. Column method using simplified pictorials [PICTORIAL REPRESENTATION] (Grade 3, 4)

In Grade 3, learners used simplified pictorials. Although Grade 4 learners should be working with abstract representations, you might have some learners who still need pictorial representations, particularly in the first term of Grade 4.

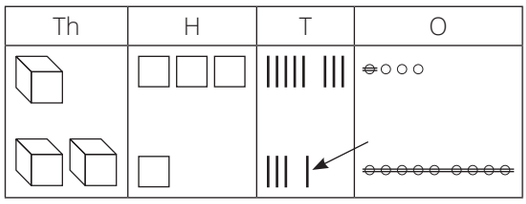
In the following diagrams, all the steps can be drawn as follows:

1) 1 384 + 2 139

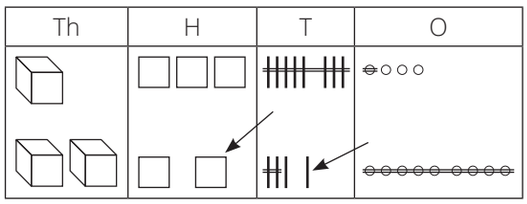
Step 1. Draw 1 384 and 2 139 vertically.



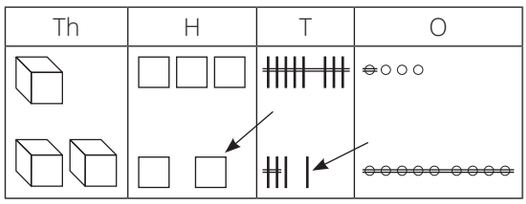
Step 2. Since 4 + 9 in the ones place exceeds 10, exchange 10 ones for 1 ten (carrying).



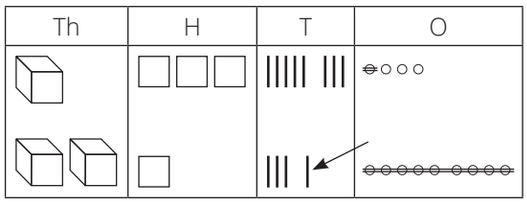
Step 3. Since 8 + 4 in the tens place exceeds 10, exchange 10 tens for 1 hundred (carrying).



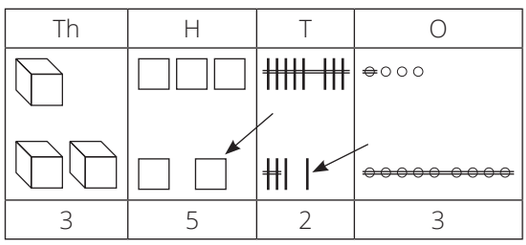
Step 4. Since 3 + 2 in the hundreds place does not exceed 10, there is no need to exchange (carry).



Step 5. Since 1 + 2 in the thousands place does not exceed 10, there it no need to exchange (carry).



Step 6. Write the answer



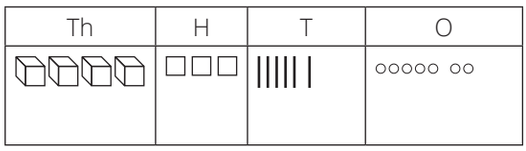
The answer is 3 523

We write this:

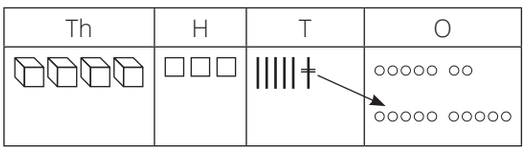
	Th	H[1]	T	U
		1	1	
	1	3	8	4
+	2	1	3	9
	3	5	2	3

2) 4 367 – 2 278

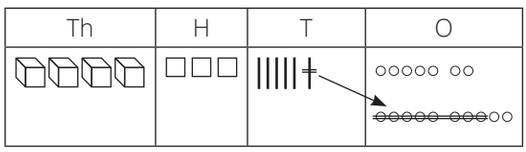
Step 1. Draw 4 367



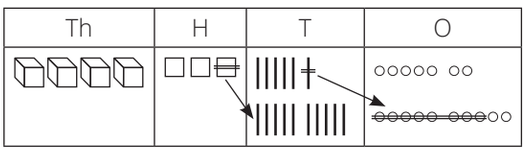
Step 2. Start in the ones place. Since we can't do 7 – 8, exchange 1 ten for 10 ones (borrowing).



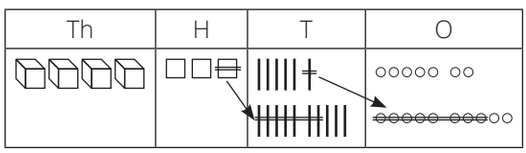
Step 3. 17 – 8 = 9 in the ones place.



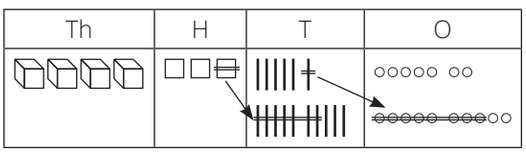
Step 4. Since we can't do 5 – 7 in the tens place, exchange 1 hundred for 10 tens (borrowing)



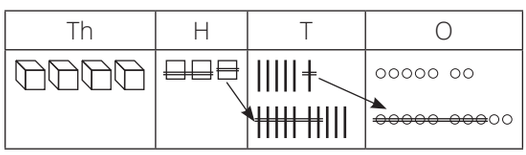
Step 5. 15 – 7 = 8 in the tens place.



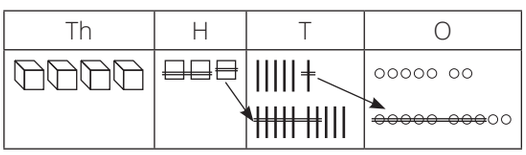
Step 6. We can do 2 – 2 in the hundreds place, so we do not need to exchange (borrow).



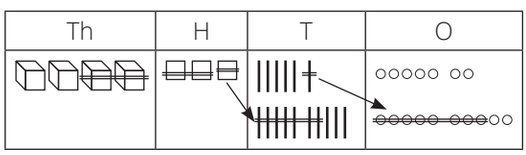
Step 7. 2 – 2 = 0 in the hundreds place.



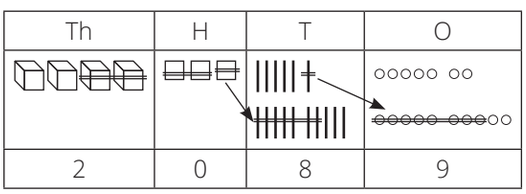
Step 8. We can do 4 – 2 in the thousands place, so we do not need to exchange (borrow).



Step 9. 4 – 2 = 2 in the thousands place.



Step 10. Write the answer



The answer is 2 089

We write this:

	Th	H	T	U
		2	15	1
	4	~~3~~	~~6~~	7
–	2	2	7	8
	2	0	8	9

c. Column method using [ABSTRACT REPRESENTATION] (Grade 2, 3, 4)

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

Grade 2

1) 45 + 12

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

2) 42 – 19

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

In Grade 3 and 4, learners can use one row.

Grade 3

3) 26 + 38

	H	O
	1	
	2	6
+	3	8
	6	4

4) 81 – 47

	T	O
	7	1
	~~8~~	1
–	4	7
	3	4

5) 384 + 139

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

6) 367 – 78

	H	T	O
	2	1 5	1
	~~3~~	~~6~~	7
–		7	8
	2	8	9

Grade 4

7) 1 249 + 3 856

	Th	H	T	O
	1	1	1	
	1	2	4	9
+	3	8	5	6
	5	1	0	5

8) 4 321 – 2 463

	Th	H	T	O
	3	12	11	1
	~~4~~	~~3~~	~~2~~	1
–	2	4	6	3
	1	8	5	8

II. PROBLEM SOLVING

a. General Procedure to follow when Solving Problems

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

b. Using Manipulatives or Diagrams to Solve Word Problems

THE FOUR STEPS TO FOLLOW WHEN SOLVING WORD PROBLEMS

Step 1: Understand the problem

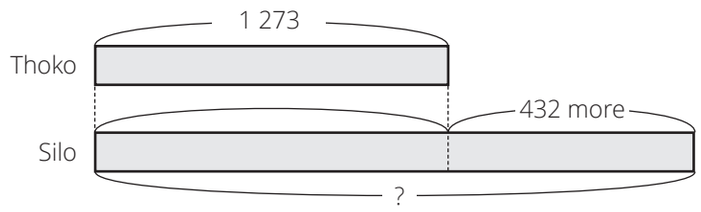
1 Write the word problem on the chalkboard
2 Read the problem.
3 Let learners read the problem until they read it fluently.
4 Underline the numbers.
5 Underline the question with a wavy line.
6 Let learners reproduce the story with manipulatives or diagrams.

For example:

Thoko has ran 1 273 metres.

Silo ran 432 metres further (more) than Thoko.

How far did Silo run?



Step 2: Devise a plan
1 Determine the operation.
2 Write a number sentence: 1 273 + 432 = ☐
Step 3: Carry out the plan
1 Find the answer to the number sentence: Silo ran 1 705 metres.
Step 4: Look back
1 Compare learners' solutions.
2 Do the corrections.
3 Let learners record the work in their books.

Glossary of important terms used in the TMU lesson plans

The following terms are used in the TMU lesson plans for Grade 4. Some of the terms also appear in CAPS. This glossary has been prepared for Grade 4. Terms used in the TMU that expand on the CAPS repertoire are indicated.

Calculation Terms

ADDITION WITH CARRYING (TMU)

The type of addition which occurs when we need to bridge a ten, hundred, thousand, ten thousand or hundred thousand in calculations.

Examples: 197 + 4; 157 +149; and 10 984 + 19 499.

The term 'carrying' is used since the terminology is familiar to teachers.

Example: when we 'carry' 1 hundred in order to bridge the hundred, and end up with 10 hundreds, numbers are 'exchanged' to make 1 thousand.

SUBTRACTION WITH BORROWING (TMU)

The type of subtraction which occurs when the units involved in the subtraction create an *impasse* (a temporary hurdle).

Examples: 526 – 137; 423 – 397 and 10 204 – 9 429. The units do not allow for subtraction 'on their own'.

The term 'borrowing' is used since the terminology is familiar to teachers.

Example: when we 'borrow' 1 thousand, we 'exchange' it for 10 hundreds in order to overcome the *impasse* so that the subtraction can be done. We then group the 10 hundreds with the other hundreds in the question.

BASE-TEN NUMBER SYSTEM

The base-ten number system is the most commonly used number system across the world. The base-ten number system uses a base of ten which means that it involves grouping in tens.

Examples: There are 10 ones in 1 ten, 10 tens in 1 hundred, 10 hundreds in 1 thousand, 10 thousands in 1 ten thousand and 10 ten thousands in 1 hundred thousand.

Each digit in a number has a value according to its position in the number. The only digits we need to represent a number of any size are the digits 0 to 9. One focus of the TMU framework is to move from mathematics based on counting methods to methods governed by the base-ten number system.

COLUMN METHOD

The column method is a calculation technique used in addition and subtraction that helps to reinforce number concept or number sense. The column method is 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 structuring should help learners to understand the concept of place value and to work meaningfully with numbers (rather than making tallies and counting).

EXPANDED NOTATION

Expanded notation is a representation of a number made by writing it out using place value. Expanded notation' and 'building up and breaking down of numbers' are used interchangeably in CAPS. By the end of Grade 4, learners should be able to write a number using expanded notation in order to show the place value of each of the digits in a number up to 1 000 000.

Example: 943 567 is written in expanded notation as:
943 567 = 900 000 + 40 000 + 3 000 + 500 + 60 + 7
OR 943 567 = 9 hundred thousand + 4 ten thousand + 3 thousand + 5 hundred + 6 tens + 7 ones
OR 943 567 = 9 HTh + 4 TTh + 3 Th + 5 H + 6 T + 7 O

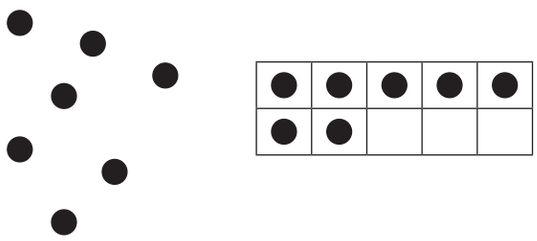
SUBITISING

Subitising is 'an instant recognition of the number of objects in a group of objects'

This skill should have been acquired by learners in the Foundation Phase and can then be used in the Intermediate 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.

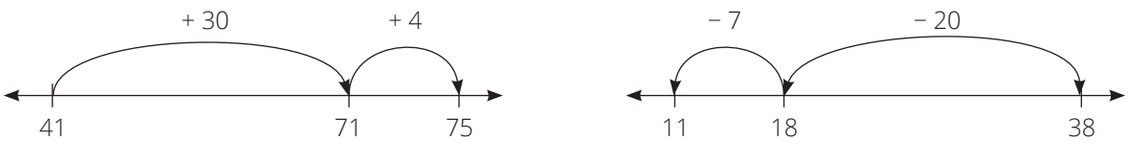


JUMPING STRATEGIES ON A NUMBER LINE

When we solve addition or subtraction with number line, we use 'jump' strategies. This strategy builds on learners' knowledge of numbers and can also help reinforce number concept or number sense.

There are many ways in which 'jumps' can be made on a number line, but efficient jumps (such as jumping to the next ten or jumping in tens, hundreds or thousands) make calculation easier.

Choosing these 'efficient jumps' develops learners' number sense.



Representation Terms

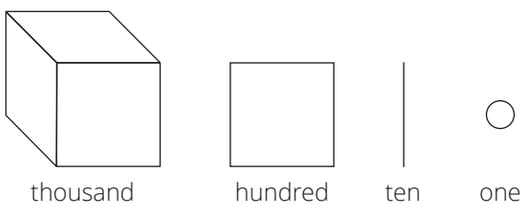
CONCRETE-PICTORIAL-ABSTRACT (CPA) APPROACH (ALSO KNOWN AS THE CRA APPROACH)

The Concrete-Pictorial-Abstract (CPA) approach helps learners develop the concepts of numbers. The CPA approach uses several different representations for the concept of the 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 such as 1, 2 and 3; and symbols such as ' + ', '–', '×', '÷'.

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

A simplified pictorial representation of thousands, hundreds, tens and ones is used to depict numbers on paper.



By using simplified pictorials, a large amount of time can be saved writing compared to drawing, for example, tallies and circles.

Simplified pictorials are more effective than tallies.

Tallies should not be drawn beyond a maximum of 20 items and preferably not for more than ten items.

PLACE VALUE TABLE (GR 2, 3, 4)

A place value table is diagram showing a number using a display of concrete/semi-concrete objects and abstract representations (numbers and number names).

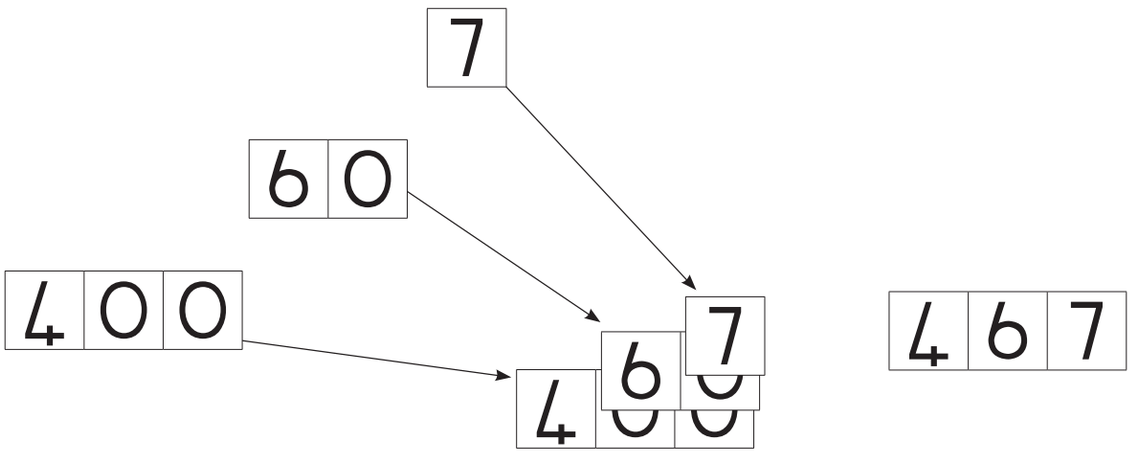
Example of the number 5 137 469 shown in a place value table:

M	HTh	TTh	Th	H	T	O
5	1	3	7	4	6	9

PLACE VALUE CARDS

Place Value Cards (also called Flard Cards) are a set of cards which learners can use to 'build' numbers. The cards for each place value are different lengths, with the highest place value being the longest card.

The diagram below shows how the number 467 is built using Place Value cards.



Place Value cards are particularly useful for building the concept of place value, as well as for expanded notation. The way in which learners use their Place Value cards also provides valuable feedback for the teacher.

For example, a learner who represents the number 467 using the ones cards only may not understand the concept of place value.

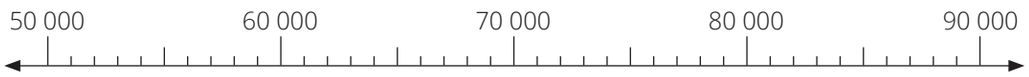
To find whether this learner understands the concept of place value, you could ask the learner to SAY the number to you or ask them to tell you what each digit in the number represents.

NUMBER LINES

A number line is a straight line divided into sections, called intervals. The numbering can start and end at any number and the size of the intervals can vary from one number line to another. The numbers on a number line increase as you move to the right.

The mid-line between the marked intervals helps the learners to avoid counting all the small intervals to read a number. If the mid-line is 5, we could find 7 by adding 2 onto 5 (5 + 2 = 7); we could find 4 by subtracting 1 from 5 (5 – 1 = 4).

In this number line, the big intervals are 10 000 and the small intervals are 1 000.



Midway between 50 000 and 60 000 is 55 000 and midway between 80 000 and 90 000 is 85 000.

ARRAY DIAGRAM (GR 2, 3, 4)

The following is the array diagram of 2 groups of 4 or 2 × 4. The order of multiplication is important when showing it in an array.

MULTIPLICATION TABLES (GR 2, 3, 4)

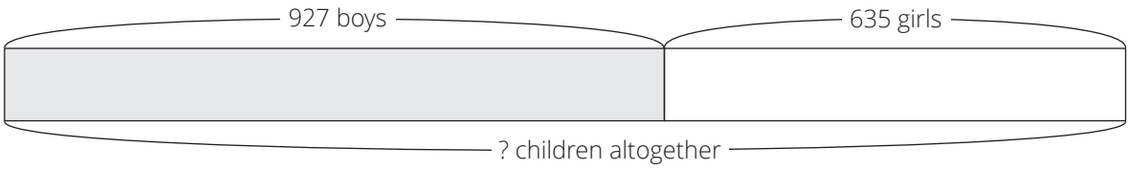
Multiplication tables show the multiples of numbers – the answers to the multiplication of several 1-digit multiplications, depending on the number of the multiplication table.

For example, the 5 times table is ❑ × 5 and will show all the multiples of 5 by the numbers 1 to 10.

Learners must memorise the multiplication tables, because once learners master the multiplication tables, they will be able to use their knowledge of multiplication to do division.

ILLUSTRATIVE DIAGRAM

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



Resources Terms

MANIPULATIVES

Manipulatives are concrete apparatus such as counters, printed tens frames, printed hundreds frames, 2D shapes and 3D objects that can be manipulated (handled) 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 (example: Unifix cubes). Teachers are expected to use concrete counters such as bottle tops on a big ten frame to help learners to develop their number concept as they learn how to count and work with numbers, starting from the number 1.

An abacus can also be used for counting. In the lesson plans, all counters are referred to as bottle tops.

TEN FRAMES (GRADE 1, TERMS 1 AND 2)

Learners in the Foundation Phase used a variety of ten frames, ten frame cards and counters (bottle tops) to support the development of concepts related to the decimal system. Ten frames are limited to ones and tens which, by Grade 4, learners should be fully conversant with.

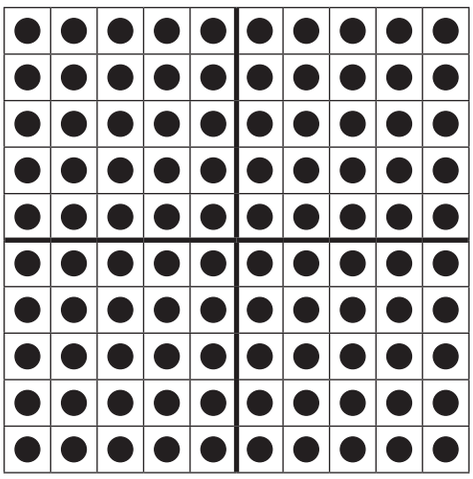
If any of your Grade 4 learners need support provided by ten frames, ask a colleague in the Foundation Phase, particularly Grade 1, for advice on the use of ten frames.

PRINTED TENS (GRADE 1, 2, 3, 4)

A printed ten is a printed version of a group of 10 ones. Call them 'ten(s)' when you use them in a lesson.

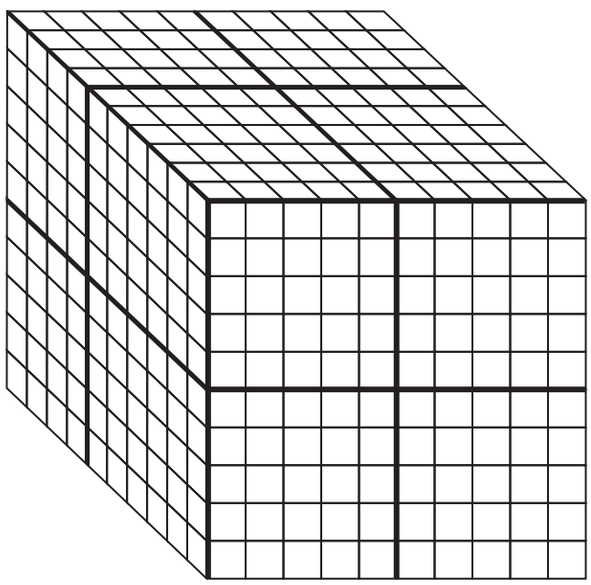
PRINTED HUNDREDS (GRADE 3, 4)

A printed hundred is a printed version of a group of 10 tens. Call them 'hundred(s)' when you use them in a lesson.



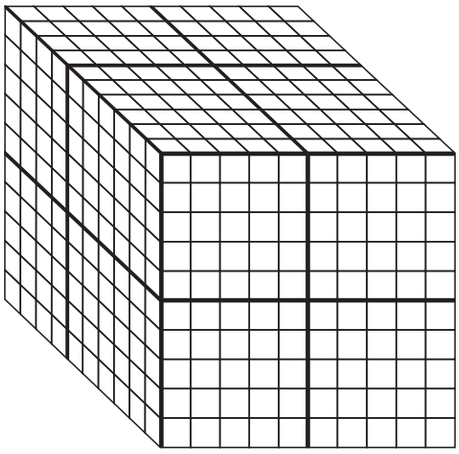
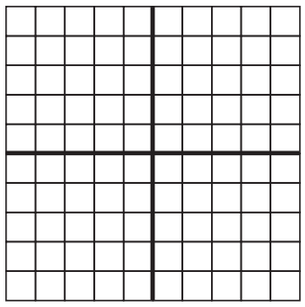
PRINTED THOUSANDS (GRADE 4)

A printed thousand is a printed version of a group of 10 hundreds. Call them 'thousand(s)' when you use them in a lesson.



BASE 10 KITS (GR 1,2,3,4)

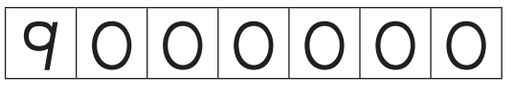
Base 10 kits are the concrete number representations used in the TMU lesson plans as 'counters' for ones, tens, hundreds and thousands. Bottle tops are used as single counters (to count ones), printed tens are used to count tens, printed hundreds are used to count hundreds and printed thousands are used to count thousands.

1 000	100	10	1
thousand	hundred	ten	one
			

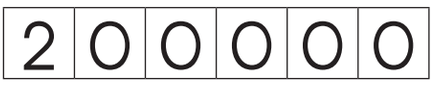
PLACE VALUE CARDS

Place Value cards are the concrete number representations used in the TMU lesson plans to build the concepts of place value and expanded notation.

Examples of Place Value cards for millions and hundred thousand.



Nine million



Two hundred thousand

Assessment for learning

Teaching is an engagement with learners that is ongoing. The engagement should be planned so that it can lead to the achievement of learning goals in a meaningful way. As in the Foundation Phase, teaching and assessment in the Intermediate Phase should be closely aligned so that teachers draw on knowledge and skills gained through assessment to inform and enrich their classroom activities. This is ***assessment for learning***. The TMU pilot has planned assessment activities. Use these activities to find out what has been learned in your class and what you need to do to take this learning further. The planned lesson activities also provide opportunities for you to listen to your learners while you teach and to think diagnostically about learners' responses in discussions. You can then build on what you have learned through this activity to deepen the learning that takes place in your class.

The teachers' notes in the TMU lesson plans indicate daily objectives.

For example, for division:

Mathematics = Methods/Strategies

Learning objectives →	We are learning to … Use multiplication as an inverse operation to divide (whole numbers without remainders)
	What will you need to do to achieve this?
Learning objectives →	Remember to … Develop a division number sentence • Recall time table corresponding to the divisor (as factor) • Find the product that is the same as the dividend • Find another factor of the product as the answer/ quotient of division

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

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

- The lesson plans and resources in this book are part of the Grade 4 Term 1 Teacher Toolkit for the pilot implementation of the mathematics framework. It includes a bilingual Dictionary of Mathematical Terms.

The other documents in the toolkit are:

- a Learner Activity Book (LAB) which includes printable homework activities which can be removed and taken home, and a set of printable resources to learners
- a Teacher Resource Pack which includes a set of teacher printable resources as well as printable assessment activities.

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 Grade 4.

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 resequenced curriculum. Lessons plans show each lesson's links to the CAPS content and skills being focussed on in the lesson.

2 DBE WORKBOOKS

Pilot implementation schools have been given permission **NOT** to use the DBE workbooks. You should use the CAPS- and lesson plan-aligned Learner Activity Books (LABs) instead. The LAB has been designed to include activities from the DBE workbook wherever possible. The DBE workbook could be used for extension or additional activities if you have time and wish to do so.

3 BROAD OVERVIEW OF THE CONTENT OF THE LESSON PLANS

Each lesson plan provides a set of steps to guide you in delivering the lesson.

In addition, the lesson plans contain:

- Mental maths activities
- Whole class activities led by the teacher that will help learners to develop the concepts and skills set for the lesson
- Classwork activities
- Homework activities.

The answers for the classwork and homework activities are included in the lesson plans.

The classwork and homework activities form the content of the LAB which is provided in workbook format.

4 ASSESSMENT

Assessment opportunities are provided in the Teacher Resource Pack and are discussed in the sequence of lessons. There is also a recommended mark record sheet in the Teacher Resource Pack. You can first record your marks in the tracker and then transfer the marks to the SA SAMS marksheets.

The programme of assessment suggested in the lesson plans complies with the CAPS.

Photocopy the assessment activities for the learners. In the LAB, on the day that an assessment is done, there is a page provided which provides a space for learners to write corrections or do additional problems that the teacher may want them to solve after going over the written test with the class.

5 MANAGING YOUR TEACHING USING THE LESSON PLAN

The formal curriculum for Term 1 of Grade 4 is covered in a set of 48 numbered lesson plans, paced to cover a 48-day teaching term. This includes 41 fully planned lessons, 2 assessment lessons and 5 consolidation lessons.

Each of the lessons is designed to last 60 minutes. If your school's timetable has different period lengths, you will need to adjust the amount of work done in each lesson to accommodate this. Each school should allow six 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 fully planned lesson and its contents has been carefully sequenced. You should not skip any of these lessons. Should you miss a school day for any reason, rather skip a consolidation lesson near to the lesson that you are teaching. You might choose to speed up the pace of delivery to catch up a missed lesson by covering the lesson concept contents of two consecutive days in one day. To do this, you could cut out or cut back on some of the routine activities like mental mathematics or homework reflection to save time until you are back on track with the expected delivery of the plans.

7 UNIT PLAN AND OVERVIEW

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

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

Reflect on the following as you prepare lessons that follow the CPA approach

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

Preparing to teach a lesson

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

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

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

a Your lessons will not succeed if you have not prepared properly ahead of time. Where possible, prepare more than one lesson at a time. Ideally, you should prepare lessons for a whole week or unit so that you have a sound knowledge of what is to be done.

b **Prepare resources:** The resources needed for each lesson are listed in each lesson plan and in the tracker. Check what is required for each lesson ahead of time, so that you have all your resources ready for use every day (examples: bottle tops, number grids, paper cut-outs, examples of 2D shapes and 3D objects).

If you do not have all the necessary resources readily available, see how best you can improvise, for example get learners to collect bottle tops or small stones to be used for counting, or make your own number grids or arrays using pieces of cardboard and a marker pen.

Start collecting resources well in advance. Collect empty cool drink cans, cereal boxes, washing powder boxes and plastic bottles for use when dealing with 2D shapes, 3D objects and capacity. 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.

c **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 for use when you do the interactive whole-class-teaching component of the lesson. Mark classwork and homework activities as often as you can so that you can give useful feedback to the learners each day and become aware of any difficulties the learners are having as soon as they become apparent.

d **Prepare to teach the concepts and skills associated with the lesson topic:** Think carefully about what you will teach your learners in the lesson:

- Be sure that you are familiar with the sequence of activities in the lesson plan.
- Prepare a short introduction to the topic so that you can explain it in simple terms to your learners.
- Prepare for the teaching of the new vocabulary and concepts before you teach – you need to be able to explain new mathematics content and skills to the learners.
- Go through the oral teaching activities provided in the lesson plans and in the Learner Activity Book (LAB).

- 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.
- Prepare yourself to assist learners with any questions they might have during the lesson.
- Think about how you will accommodate learners with barriers to learning.

e **Lesson pace:** Think about how much time you will spend on each activity. Plan how you will manage the pace of the lesson carefully; otherwise you might 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.

f **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.

g **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:

i Directorate Inclusive Education, Department of Basic Education (2011) *Guidelines for Responding to Learner Diversity in the Classroom Through Curriculum and Assessment Policy Statements.* Pretoria. www.education.gov.za, www.thutong.doe.gov.za/InclusiveEducation.

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

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

- **Always** teach with a SMILE
- **Always** give learners enough time to think/struggle and discover something on their own and keep quiet while they are thinking/working individually. **Do not** explain everything
- **Always** plan the lesson with enough time to let learners deepen their own thinking and be patient. **Do not** rush learners into saying/doing something by saying *'quick, quick, quick'*.
- **Always** share a variety of answers/thinking with all the learners and let them compare, think and explain which ones are OK/not OK and why. **And always** discuss important errors so that everyone can learn from them. **Do not** erase/remove incorrect answers.

- **Always** ask the learners 'why did you think so', regardless of whether their answer is correct or incorrect. **And always** assist learners to discover where and why they made mistakes. Use other learners as well to explain why something is not correct. **Do not** say *'No', 'Wrong', 'Next', 'Right', 'Yes', 'Correct',* etc. immediately after learners give you their answers.
- **DO NOT** answer or use your phone during the lesson.

Note:

The four terms in a year are not always the same length, or you might not have the planned number of teaching and learning weeks available.

You will need to adjust the pace at which you work to complete the work in the time available or make other plans to stay on track.

Grade 4 Time Allocation Per Topic

CAPS: TIME ALLOCATION PER TOPIC: GRADE 4 (page 34 in CAPS)							
TERM 1		**TERM 2**		**TERM 3**		**TERM 4**	
Topic	**Time**	**Topic**	**Time**	**Topic**	**Time**	**Topic**	**Time**
Mental Mathematics (10 minutes daily)	**8 h**	Mental Mathematics (10 minutes daily)	**7 h**	Mental Mathematics (10 minutes daily)	**8 h**	Mental Mathematics (10 minutes daily)	**7 h**
Whole Numbers: Counting, ordering, comparing and place value (3-digit numbers)	**2 h**	Whole Numbers: Counting, ordering, comparing and place value (4-digit numbers)	**1 h**	Capacity/volume	**6 h**	Whole Numbers: Counting, ordering, comparing and place value (4-digit numbers)	**1 h**
Number sentences	**3 h**	Whole Numbers: Addition and Subtraction (4-digit numbers)	**4 h**	Common Fractions	**5 h**	Whole Numbers: Addition and Subtraction (4-digit numbers)	**4 h**
Whole Numbers: Addition and Subtraction (3-digit numbers)	**8 h**	Common Fractions	**6 h**	Whole Numbers: Counting, ordering, comparing and place value (4-digit numbers)	**1 h**	Mass	**6 h**
Numeric patterns	**4 h**	Length	**7 h**	Whole Numbers: Addition and Subtraction (4-digit numbers)	**4 h**	Properties of 3-D objects	**4 h**
Whole Numbers: Multiplication and Division (1-digit by 1 digit)	**4 h**	Whole Numbers: Multiplication (2-digits by 2 digits)	**6 h**	Viewing objects	**2 h**	Common Fractions	**5 h**
Time	**6 h**	Properties of 3-D objects	**5 h**	Properties of 2-D shapes	**4 h**	Whole Numbers: Division (3-digit by 1 digit)	**3 h**
Data handling	**10 h**	Geometric patterns	**4 h**	Data handling	**7 h**	Perimeter, Area & Volume	**7 h**
Properties of 2-D shapes	**5 h**	Symmetry	**2 h**	Numeric patterns	**4 h**	Position and Movement	**2 h**
Whole Numbers: Multiplication and Division (2-digits by 1 digit)	**5 h**	Whole Numbers: Addition and Subtraction (4-digit numbers)	**4 h**	Whole Numbers: Addition and Subtraction (4-digit numbers)	**4 h**	Transformations	**3 h**
		Whole Numbers: Division (3-digit by 1 digit	**4 h**	Whole Numbers: Multiplication (2-digits by 2 digits)	**5 h**	Geometric patterns	**2 h**
				Number sentences	**3 h**	Whole Numbers: Addition and Subtraction (4-digit numbers)	**3 h**
				Transformations	**3 h**	Probability	**2 h**
Revision	**5 h**	Revision	**4 h**	Revision	**4 h**	Revision	**5 h**
		Assessment (all subjects)	**6 h**			Assessment (all subjects)	**6 h**
TOTAL: 60 HOURS		**TOTAL: 60 HOURS**		**TOTAL: 60 HOURS**		**TOTAL: 60 HOURS**	

CAPS: TIME ALLOCATION PER TOPIC: GRADE 4							
TERM 1		**TERM 2**		**TERM 3**		**TERM 4**	
Topic	**Time**	**Topic**	**Time**	**Topic**	**Time**	**Topic**	**Time**
Whole Numbers Counting, ordering, comparing, representing, place value (up to 1 million)	**11 h**	**2-D Shapes** Classification, investigations, drawing, tessellations, location	**13 h**	**Whole Numbers** Multiplication of 2-digit by 2-digit	**9 h**	**Decimal Fractions** Calculations with decimal fractions; solving problems; equivalent forms	**6 h**
Whole Numbers Addition and subtraction using column method up to 6-digit numbers	**12 h**	**Common Fractions** Describe and order fractions; calculations with fractions; solving problems; equivalent forms	**10 h**	**Area and Perimeter** Calculating perimeter of shapes; calculating area of squares and rectangles	**12 h**	**Time** Read time in different formats; read calendars; calculations and problem solving; conversions with time	**5 h**
Whole Numbers Approximating numbers and calculations	**10 h**	**Data Handling** Collecting and organising data; representing data; analysing, interpreting and reporting data	**15 h**	**Capacity and Volume** Estimate capacity; practically measure and record the capacity / volume; calculate the volume of solid objects	**10 h**	**Length** Estimate the length; practically measure and record length; solve problems in context; conversions	**5 h**
Numeric and Geometric Patterns and Number Sentences	**15 h**	**Whole Numbers** Multiplication of multiples of 10 up to 100 000 by 1-digit number; solve problems in context with whole numbers	**7 h**	**Whole Numbers** Division of 3- by 1-digit with/without a remainder	**12 h**	**Mass** Estimate mass; practically measure, record and compare the mass of objects; solve problems in contexts; conversions	**5 h**
				Decimal Fractions Recognise, order and place value of decimal fractions;	**4 h**	**Properties of 3-D Objects** Including position and views	**12 h**
Revision	**10 h**	Revision	**12 h**	Revision	**11 h**	Revision	**19 h**
Assessment	**2 h**	Assessment	**3 h**	Assessment	**2 h**	Assessment	**2 h**
TOTAL: 60 HOURS		**TOTAL: 60 HOURS**		**TOTAL: 60 HOURS**		**TOTAL: 54 HOURS**	

Lesson Plan Outline

Each lesson plan has several components. Information about each component is discussed below. This information tells you how to use each of the components of the lesson plan and how they fit together to create a well-paced and properly scaffolded mathematics lesson each day.

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

a Teacher's notes include information for the teacher about the **CAPS content** to be covered in the lesson and the learning objective for the lesson.

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

c Then the **resources** that you should prepare for the day's lesson are listed. Check which resources you need in advance for each lesson so that you are ready to teach the lesson each day.

1. MENTAL MATHEMATICS (5 MINUTES)

This is the first active component of the lesson and should last only 5 minutes.

Mental mathematics can be both an **oral** or a **written** activity that consist of a set of questions which drill number facts and basic mathematical strategies that are linked to the day's lesson.

The mental mathematics activities for each day are given both in the Daily Lesson Plans and in the Learner Activity Book, but they could also be written on the board or asked orally by the teacher. The answers to the mental mathematics questions are given in the answer column in the Daily Lesson Plans.

We suggest that the learners see the answers written down so they can reflect where they made a mistake, how many they got right and how many they got wrong.

- Observe which learners struggle with mental maths activities. Make sure to spend time later to help them reach the required level of competence by offering remediation activities, which may involve using concrete or pictorial aids. Mental mathematics is not meant to be an activity using concrete material to scaffold the learning, but, if there are learners who need concrete aids to complete the mental mathematics activities, allow them to do so.
- Try to complete all of each day's mental mathematics questions, but if you find that your learners struggle to finish these in five minutes, reduce the number of questions.

2. LINK TO PREVIOUS LESSON (5 MINUTES)

This part of the lesson provides an opportunity to quickly revise the main concept dealt with in the previous lesson. It provides an opportunity for you to informally assess learners' understanding of the concept/s.

3. CORRECT HOMEWORK ACTIVITY (5 MINUTES)

Work through the homework from the previous lesson. This will provide you and the learners an opportunity to gauge the learners' knowledge and skills.

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

4. LESSON CONTENT – CONCEPT DEVELOPMENT. CORRECT CLASSWORK ACTIVITIES (35 MINUTES)

This is the body of the lesson. Activities on the content that you will teach with worked examples and suggested explanations are provided. 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.

The Activities that the learners should do are provided in in their Learner Activity Books (LABs). They work on the Activities, either on their own, with a partner, or with their group.

Note that individual work is important. Sometimes, in group work, only one or very few learners lead the group: they do all the work and present it to the class for the group. Group work does not guarantee every learner's learning and understanding. Some of the group members may have been left behind without knowing exactly what has been has done. Learners should first work individually and then discuss what they have done with the rest of the group, based on what they have in their classwork books or worksheets.

Manage the pace of the lesson carefully; otherwise, you might 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.

Do not wait for the last learner to finish before proceeding. If there are further activities, continue pacing yourself in this way, so that you work through all of the activities in each lesson. Occasionally a few activities are marked as optional – these need only be done if you have sufficient time.

5. HOMEWORK ACTIVITY (5 MINUTES)

Take about five minutes 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.

As part of their homework, learners should complete classwork activities as necessary.

The daily homework activities are provided in the LAB.

6. REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

Wrap up each day's lesson by focussing learners on the content covered and the concepts they should have learned.

Unit 1: numbers up to 1 000 000

INTRODUCTION

This unit focuses on numbers up to 1 000 000. Learners will be given opportunities to revise what they have already learned about the notation, numeration, addition and subtraction of numbers up to 1 000. Learners will then extend their number knowledge and skills to numbers up to 1 million.

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

Framework dimension	How the dimension is developed in this unit
Conceptual understanding	Revise numbers up to 1 000. This creates the platform to build new knowledge of numbers to 1 000 000.
Procedural fluency	We follow the same process when comparing and ordering 6-digit numbers as we followed when comparing and ordering 5-digit numbers.
Strategic competence	Learners work with a partner to try to add two 4-digit numbers. By not providing a strategy immediately, you give learners the opportunity to decide on appropriate strategies to solve mathematical problems.
Reasoning	Learners look for a pattern and then work out a rule for multiplying whole numbers by 10, 100 and 1 000.

In this unit, we build a **learning centred classroom** by paying attention to:

		Examples
Speaking mathematics	✓	Learners encouraged to say large numbers out loud – this develops concept of place value
Making sense of mathematics	✓	Use of manipulatives to support concept development
Practising procedures	✓	Using the same procedure (method) when doing several examples of multiplying and dividing by 10, 100 and 1 000
Purposeful assessment	✓	Assessment for learning during activities
Justifying answers	✓	Asking learners why they give certain answers
Explaining concepts and procedures	✓	How to determine whether a large number is odd or even
Connecting representations	✓	Showing large numbers using ***concrete*** (Base 10 kit), ***semi-concrete*** (place value cards) and ***abstract*** (numerals) representations of the same number
Addressing gaps in learners' knowledge	✓	Using feedback from learners' responses in classwork and homework activities to inform the lesson
Addressing learners' errors	✓	Feedback from learners' responses in classwork and homework activities

Active learning	✓	Working with a partner to represent 4-, 5- and 6- digit numbers with Place Value cards

Mathematical vocabulary for this unit

Be sure to teach and use the following vocabulary at the appropriate place in the unit. Refer to the bilingual dictionary where necessary.

Term	Explanation / diagram
add	To join two or more numbers together to find the total amount. Example: 3 + 2 + 1 = 6
altogether	Take everything together. Example: If you have 3 flowers in one hand and 2 flowers in the other hand, you have 5 flowers altogether.
backwards	In the reverse of the usual way. When you count backwards in whole numbers, the numbers get smaller: 10, 9, 8, 7, ...
between	Occurring in the space bounded by, but not including, two items Example: the whole numbers between 10 and 15 are 11, 12, 13 and 14
big, bigger, biggest, bigger than	When you order numbers, you might use words such as big, bigger and biggest. Examples: 5 is bigger than 4. If you have the numbers 45, 46 and 47, then 47 is the biggest of those numbers.
calculate	Find the answer. Work out the solution.
compare	To look for similarities or differences. Examples: You can compare the sizes of numbers. 4 is smaller than 5. 96 is bigger than 92. 85 is equal to 85. 9 is greater than 4. 4 is less than 9. 10 is the same as 2 x 5.
count	Say or write numbers in the correct numerical order.
digit	A symbol that is used to represent the numbers 1-9 and 0. The digits we use are 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9. Examples: 49 is made up of 2 digits, namely, 4 and 9. 205 is made up of 3 digits, namely, 2, 0 and 5.
divide	The operation that involves sharing or grouping numbers. Example: 8 ÷ 2 = 4
even numbers	Numbers that are exactly divisible by 2. Examples: 2, 4, 6, 8, 10, 12, ... are even numbers.
expanded notation	Writing a number to show the value of each digit. Example: 4 329 = 4 000 + 300 + 20 +9
forwards	Going towards the front. When you count forwards in whole numbers the numbers get bigger.

Term	Explanation / diagram
greater than	Bigger. The symbol > means greater than or more than. Example: 5 > 3 means 5 is greater than 3.
less than	Smaller. The symbol < means less than or smaller than. Example: We read 4 < 9 as "4 is less than 9". This is true because 4 is a smaller number than 9.
more than	Greater than. The symbol > means more than or greater than. Example: We read 23 > 19 as "23 is greater than 19". This is true because 23 is a bigger number than 19.
multiple	The product when you multiply one whole number by another whole number. Examples: 6 is a multiple of 2; 25 is a multiple of 5.
multiple of 10 000	The products when you multiply whole numbers by 10 000. Examples: 10 000, 20 000 and 30 000 are the first three multiples of 10 000.
multiple of 100 000	The products when you multiply whole numbers by 100 000. Examples: 100 000, 200 000 and 300 000 are the first three multiples of 100 000.
multiplication	The operation that involves calculating the total of a given number of groups.
multiplication facts	All the multiplication problems from 1 × 1 = 1 up to 10 × 10 = 100. The multiplication facts are also known as the times tables.
multiply	When you multiply, you carry out the operation of multiplication. The answer that you get is called the product. Example: 7 × 2 = 14 so we say that 14 is the product of 7 and 2.
number line	A line on which numbers can be placed, according to their value. The gaps on the number line must be drawn accurately.
number name	When you write out a number using words, you give the number name. Example: The number name of 47 is forty-seven.
number sentence	When you use numbers and symbols to express the solution of a word problem you write it using a number sentence.
odd number	A number that is not exactly divisible by 2. Examples: 3, 15, 29, 55.
order	To order means to sort. You can sort numbers according to size.
place value	In the decimal number system, the value of a digit depends on its place, or position, in the number. Each place has a value that is 10 times bigger than the place to its right. In Grade 4, learners work with numbers up to 6-digits. Example: In the number 34 589, the digit 5 is in the hundreds column and has a value of 500.

Term	Explanation / diagram
plus	Add
smaller than	The symbol < means smaller/less than. Example: We read 4 < 9 as "4 is less than 9".
subtract	Take away, minus.
sum	The answer you get when you add. Example: The sum of 5 and 8 is 13
total	The sum of numbers.

Further practice for learners

This table references the page numbers of other sources (including textbooks) if you need additional activities.

	Fabulous	Oxford Headstart	Oxford Successful	Platinum	Premier	Sasol Inzalo	Solutions for All	Study & Master	Viva
LB	19-24	9-16	10-15	4-7	1-4	3-16	1-3	2-7	2-5
TG	10-13	28-35	38, 88, 141, 173	3-7, 45, 90, 121	2, 28, 92	1-18	1, 65, 203	2-6	6-7, 12

UNIT PLAN AND OVERVIEW FOR UNIT 1: Numbers up to 1 million

LP	Lesson objective	Lesson Resources	Date completed
1	Learners revise numbers up to 1 000.	Base 10 kit, Individual place value cards	
2	Learners can work with 4-digit numbers.	Base 10 kit, Individual place value cards, Place value cards (flard cards)	
3	Learners can work with 5-digit numbers. Learners can represent odd and even numbers up to 1 million.	Individual place value cards, Place value cards (flard cards) Odd and even number flash cards	
4	Learners can work with 6-digit numbers. Learners can write numbers in expanded notation.	Individual place value cards	
5	Learners can order, compare and represent 5-digit numbers.	Individual place value cards, <, >, = flash cards, number line flash cards	
6	Learners can order, compare and represent 6-digit numbers.	<, > and = flash cards	
7	Learners consolidate the comparing, ordering and representation of numbers up to 1 million.	Base 10 kit, Place value cards (flard cards), Individual place value cards	
8	Learners add 5-digit and 6-digit numbers and subtract 6-digit numbers from 6-digit numbers.	Individual place value cards	
9	Learners understand the relationship between place value and multiplying by 10, 100 and 1 000.	Multiplication flashcard	
10	Learners understand the relationship between place value and dividing by 10, 100 and 1 000.	Multiplication flashcard, Division flashcard	
11	Learners consolidate the addition and subtraction done during the week. They also consolidated multiplying and dividing whole numbers ending with a different number of zeros.	Individual place value cards, Multiplication by 100 flashcard, Division by 100 flashcard	

Assessment for learning
Use the template provided at the beginning of this guide to think deeply about at least one of the lessons in this unit.

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

What will you change next time? Why?

Lesson 1: 3-digit numbers

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum. **CAPS topic:** 1.1 Whole numbers **Lesson Objective:** Revise the concept of numbers up to 1 000 **Lesson Vocabulary:** digit, place value **Teacher Resources** (found in the Teacher Resource Pack and described in the glossary at the beginning of these lesson plans): • Individual Place Value Cards (Th, H, T, U) – cut out and stored in an envelope • Base 10 kits (10 × thousands; 10 × hundreds; 10 × tens; 10 × ones) – cut out and stored in an envelope • Prestik **Learner Resources:** (found at the back of the Learner Activity Book (LAB)) • Base 10 Kit (10 × thousands; 10 × hundreds; 10 × tens; 10 × ones) – cut out and stored in an envelope.
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

	Count forwards in:	Answer
1	1s from 109 to 115	109, 110, 11, 112, 113, 114, 115
2	1s from 97 to 104	97, 98, 99, 100, 101, 102, 103, 104
3	2s from 106 to 116	106, 108, 110, 114, 116
4	2s from 96 to 110	96, 98, 100, 102, 104, 106, 108, 110
	Count backwards:	
5	In 1s. Start at 113 and finish at 108	113, 112, 111, 110, 109, 108
6	In 1s. Start at 104 and finish at 96	104, 103, 102, 101, 100, 99, 98, 97, 96
7	In 2s. Start at 116 and finish at 106	116, 114, 112, 110, 108, 106
8	In 2s. Start at 106 and finish at 92	106, 104, 102, 100, 98, 96, 94, 92

2 LINK TO PREVIOUS LESSON (5 MINUTES)

Whole class activity

Use these questions to provide opportunities for learners to recall what they learned in Grade 3:

1 Write the number 3 429 on the board

Say: **Read the number and say it out loud** (three thousand four hundred and twenty-nine)

2 Write the number 429 (four hundred and twenty-nine) on the board.

4	2	9

a Ask: **What digit is in the one's column/place?** (9)
Place flashcard: Ones (O) above the digit 9.

		O
4	2	9

b) Ask: **What digit is in the ten's column/place?** (2)
Place flashcard: Tens (T) above the digit 2.

	T	**O**
4	2	9

c) Ask: **What digit is in the hundred's column/ place?** (4)
Place flashcard: Hundreds (H) above the digit 4.

H	**T**	**O**
4	2	9

3 Write the number 3 429 (three thousand four hundred and twenty-nine) on the board.

3	4	2	9

a) Ask: **What digit is in the one's column/place?** (9)
Place flashcard: Ones (O) above the digit 9.

			O
3	4	2	9

b) Ask: **What digit is in the ten's column/place?** (2)
Place flashcard: Tens (T) above the digit 2.

		T	**O**
3	4	2	9

c) Ask: **What digit is in the hundred's column/ place?** (4)
Place flashcard: Hundreds (H) above the digit 4.

	H	**T**	**O**
3	4	2	9

d) Ask: **What digit is in the thousand's column/ place?** (3)
Place flashcard: Thousands (Th) above the digit 3.

Th	**H**	**T**	**O**
3	4	2	9

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

There is no homework activity to correct for Lesson 1.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This is the first of 11 lessons designed to build learners' concept of numbers up to 1 000 000 (one million). In this lesson learners revise numbers up to 1 000.

As you work, be sure to get learners to

- say the numbers,
- write the numbers in words and symbols
- explain what the position each digit tells us.

This will reinforce the concept of place value which is essential for performing operations on the numbers.

Remember the convention for writing numbers that are larger than 3 digits: 3 456

Note the space after every 3 digits counting from right to left.

None of the addition and subtraction activities require exchange (borrowing). This will be done in later lessons.

Today we are learning about numbers up to 1 000.

Activity 1: Learners work in pairs

1 Write the number 692 on the board.

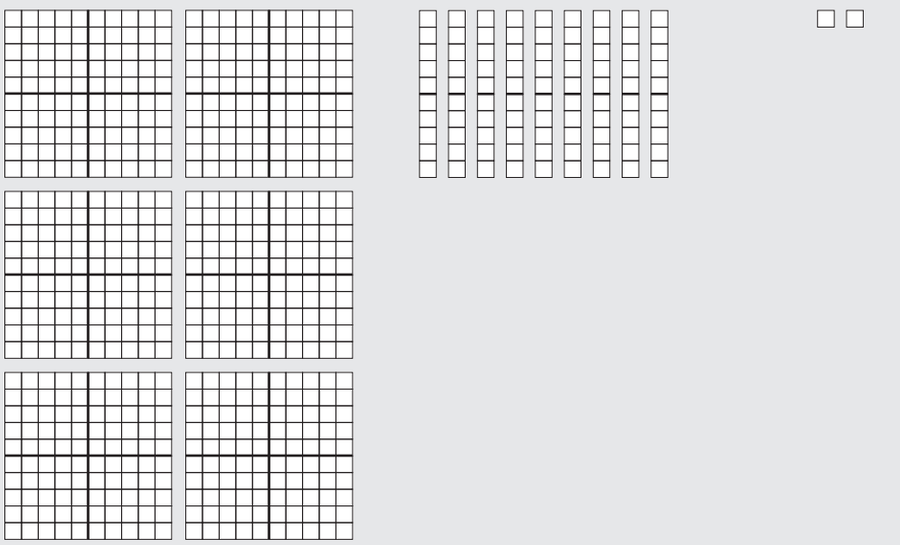
a Say: **Say the number to your partner.**

b Say: **Write the number name in words.** (six hundred and ninety-two)

c Say: **Use your Base 10 kit. Show the number 692 using the ones, tens and hundreds.**

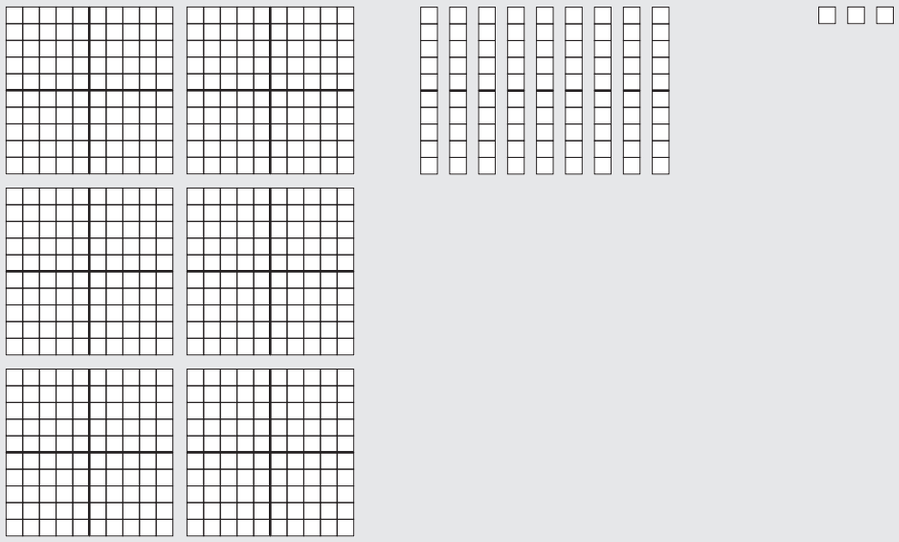
ANSWER:

6 hundreds | 9 tens | 2 ones



d Say: **Use your Base 10 kit. Add 1 one to the number 692. Say the new number and write the new number in number symbols and in words.** (693, six hundred and ninety-three)
ANSWER:

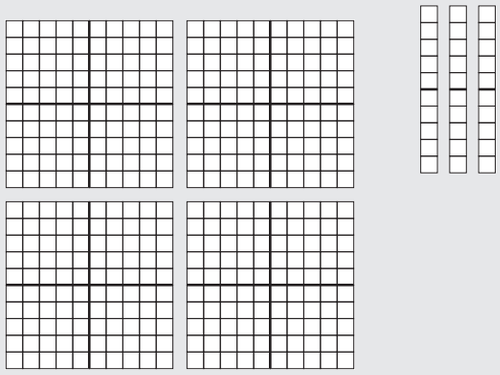
6 hundreds | 9 tens | 2 ones



2 Write the number 432 on the board.

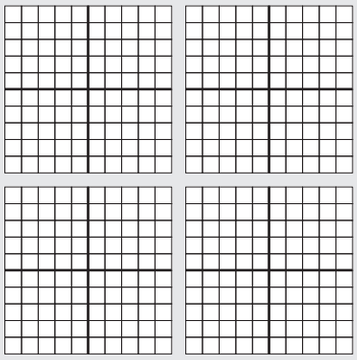
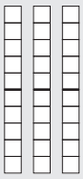
a Say: **Use your Base 10 kit. Show the number using the ones, tens and hundreds.**
ANSWER:

4 hundreds | 3 tens | 2 ones



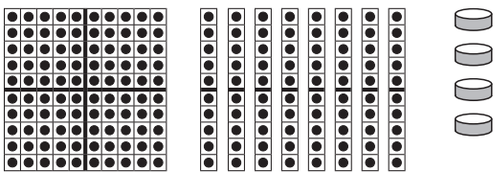
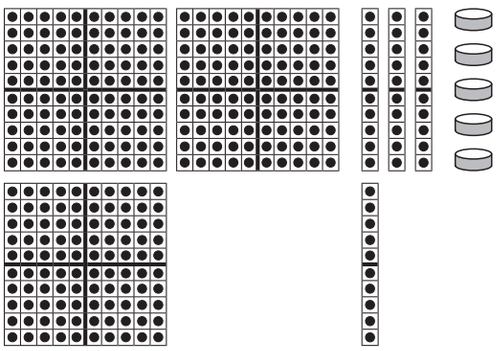
b Say: **Write the number name in words.** (four hundred and thirty-two)

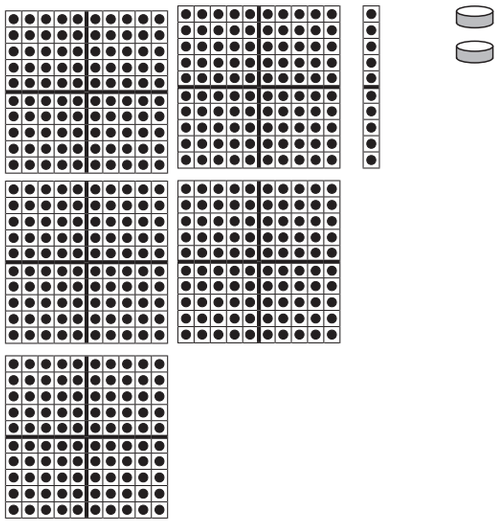
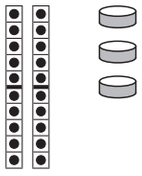
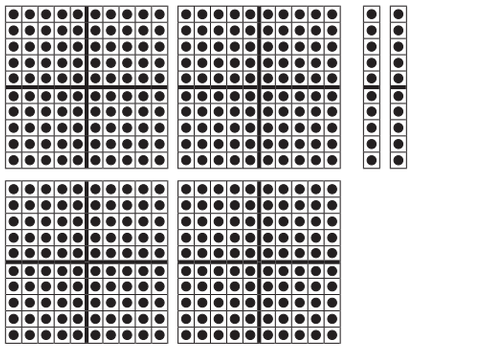
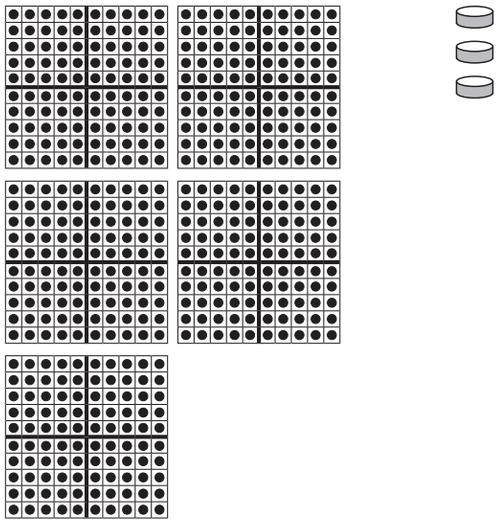
c Say: **Subtract 1 from the number. Say the new number and write the new number in symbols and words.** (430, four hundred and thirty).
ANSWER:

4 hundreds	3 tens	2 ones – subtract 1 unit
		□ □

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

- Say: **Complete Activity 2 in your LAB.**
- Mark the learners work and make sure that they are getting most of the work right.
- The answers are given in brackets in the table below.

		Write the number in symbols	Write the number in words	How many hundreds?
Example		**184**	**One hundred and eighty-four**	**1 or one**
1		(345)	(Three hundred and forty-five)	(3 or three)

2		(512)	(Five hundred and twelve)	5 or five
3		(23)	(Twenty-three)	(0)
4		(420)	(Four hundred and twenty)	(4 or four)
5		(503)	(Five hundred and three)	(0 or zero)

Activity 3: Whole class activity /Learners work in groups / Learners work in pairs

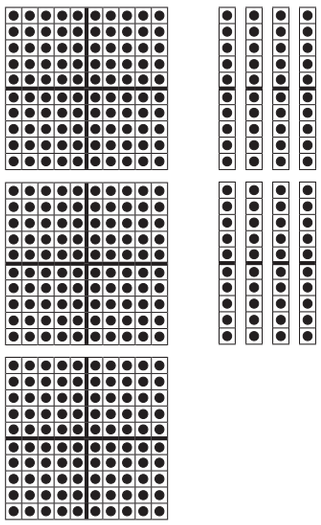
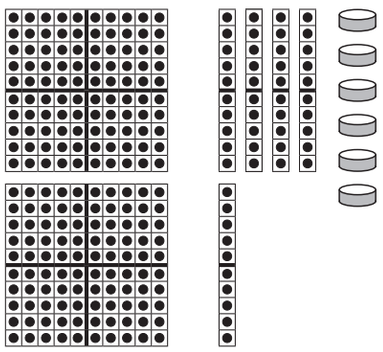
- Say: **Complete Activity 3 in your LAB.**
- Mark the learners work and make sure that they are getting most of the work right.
- The answers are given in brackets in the table below. Learners can do self-assessment and correct their own work as you work through the answers. This will help learners to see where they might be going wrong and to take responsibility for their own learning. Use the Base 10 Kit as required.

1

		How many hundreds?	Add 3 hundreds	Because
Example	**651**	**6 or six**	**951**	**(6 + 3) hundreds = 9 hundred No change in tens and ones**
a	393	(3 or three)	(693)	[(3 + 3) hundreds = 6 hundred No change in tens and ones]
b	467	(4 or four)	(767)	[(4 + 3) hundreds = 7 hundred No change in tens and ones]
c	560	(5 or five)	(860)	[(5 + 3) hundreds = 8 hundred No change in tens and ones]
d	32	(0 or zero)	(332)	[(0 + 3) hundreds = 3 hundred No change in tens and ones]

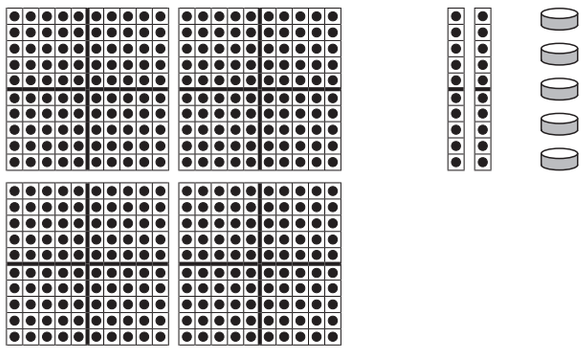
2

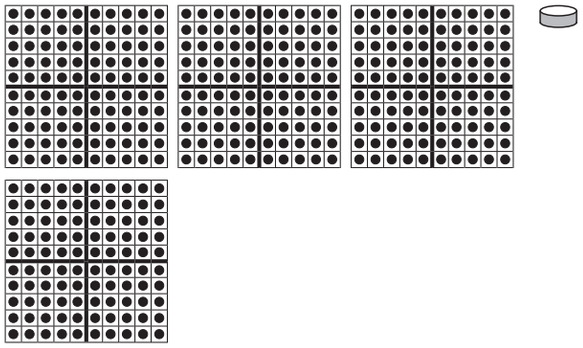
		How many hundreds?	Subtract 2 hundreds	Because
Example	**797**	**7 or seven**	**597**	**(7 – 2) hundred = 5 hundred No change in tens and ones**
a	699	(6 or six)	(499)	[(6 – 2) hundred = 4 hundred No change in tens and ones]
b	537	(5 or five)	(337)	[(5 – 2) hundred = 3 hundred No change in tens and ones]

c		(3 or three)	(180)	[(3 – 2) hundred = 1 hundred No change in tens and ones]
d		(2 or two)	(56)	(2 – 2) hundred = 0 hundred No change in tens and ones

5 HOMEWORK ACTIVITY (5 MINUTES)

- The homework activities are found at the back of the Learner Activity Book (LAB).
- Briefly explain what learners should do for the homework activity. You could answer the first question with the learners if you think that is necessary.
- The answers are given in brackets in the table.

		How many hundreds?	**Subtract 2 hundreds**
1		(4 or four)	123

2		(7 or seven)	(401)
3	549	(5 or five)	(259)
4	869	(8 or eight)	(569)
5	346	(3 or three)	(46)
6	700	(9 or seven)	(600)

6 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we have revised numbers up to 1 000. You know how to read and write the numbers in symbols and in words and you know that the place of a digit tells us the value of the digit.

Lesson 2: 4-digit numbers

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum.
CAPS topics: 1.1 Whole numbers
Lesson Objective: Learners understand the numeration and notation of numbers from 0 to 9 999
Lesson Vocabulary: add, subtract
Teacher Resources: Place Value Cards (flard cards) – cut out and stored in an envelope; Base 10 kits, Individual Place Value Cards, Prestik.
Learner Resources: Place Value Cards (flard cards) – cut out and stored in an envelope; Base 10 kits; Place Value Cards (flard cards)
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Count forwards in:	Answer
1	2s from 594 to 604	594, 596, 598, 600, 602, 604
2	2s from 585 to 595	585, 587, 589, 591, 593, 595
3	5s from 580 to 605	580, 585, 590, 595, 600, 605
4	10s from 580 to 620	580, 590, 600, 610, 620
	Count backwards in:	
5	1s from 603 to 597	603, 602, 601, 600, 599, 598, 597
6	2s from 614 to 604	614, 612, 610, 608, 606, 604
7	5s from 610 to 590	610, 605, 600, 595, 590
8	10s from 615 to 585	615, 605, 595, 585

2 LINK TO PREVIOUS LESSON (5 MINUTES)

Whole class activity.

Revise concepts from previous lesson by asking questions:

- Ask: **How many hundreds in 896?** (8 hundreds)
- Ask: **How many hundreds in 459?** (4 hundreds)
- Ask: **How many hundreds in 32?** (0 hundreds)
- Ask: **How many hundreds do I need to add to 539 to get 839?** (3 hundreds)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

- The answers to the Homework Activity for Lesson 1 are provided in brackets in the activity in Lesson 1. Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (35 MINUTES)

The number range is extended from 1 000 to 9 999, meaning that learners need to acquire the knowledge and skills to work with 4-digit numbers. If the foundations of the concept of place value in 3-digit numbers have been laid, then it is a natural progression to 4-digit numbers where learners work with thousands, hundreds, tens and ones. The lesson starts with a word problem to place learning in context.

Today we are learning to work with 4-digit numbers.

Activity 1: Learners work in pairs

1 Write this word problem on the board: Beautiful Bread Bakery baked 1 432 loaves of bread on Saturday and 2 000 loaves on Sunday. How many loaves of bread did they bake altogether?

First make sure that the learners understand the problem

i Read the problem.

ii Let the learners read the problem until they read it fluently.

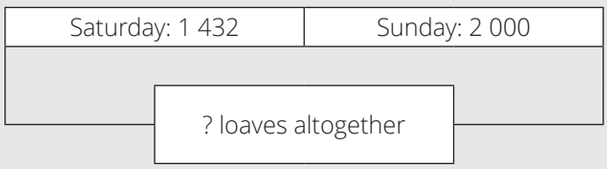
iii Underline the numbers.

> Beautiful Bread Bakery baked 1 432 loaves of bread on Saturday and 2 000 loaves on Sunday. How many loaves of bread did they bake altogether?

iv Underline the question with a wavy line.

> Beautiful Bread Bakery baked 1 432 loaves of bread on Saturday and 2 000 loaves on Sunday. How many loaves of bread did they bake altogether?

v The learners reproduce the story with manipulatives or by drawing diagrams in their classwork books.



vi Let a learner present his/her diagram on the board.

vii Let the learners determine the operation. (Addition; we add; …)

2 **a** Say: **Work with your partner to find the answer. You can use your Base 10 kits if you want to.**

b Don't rush to the answer. Give learners time to develop their strategic competence by trying to solve on their own first.

c Place the Th, H, T and O flashcards on the board, draw columns, leaving space for learners to write their answers

Th	H	T	O

d Ask: **Who would like to write their answer on the board?**

e Allow a few learners to write their answer on the board – leave all answers on the board for discussion.

3 Discuss the two 4-digit numbers mentioned in the word problem:

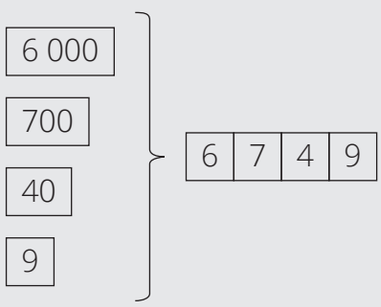
a Write the number 1 432 on the board.
Remind learners of mathematical convention to leave a space after the third digit from the right.
- Say: **Say this number out loud.** (one thousand four hundred and thirty-two)
- Say: **Use your Base 10 kit to show the number.**
- Ask: **How many thousands are there?** (1)

b Write the number 2 000 on the board.
Remind learners of mathematical convention to leave a space after the third digit from the right.
- Say: **Say this number out loud.**
- Say: **Use your Base 10 kit to show the number.**
- Ask: **How many thousands are there?** (2)

c Say: **Add 1 432 and 2 000 by combining the ones, tens, hundreds and thousands.**
- Say: **Write the answer: 1 432 + 2 000 =** (3 432)
- Say: **Write the answer in words.** (Three thousand, four hundred and thirty-two)
- Ask: **How many loaves of bread were baked altogether?** (3 432 loaves)

Activity 2: Learners work in pairs

1 Say: **Use your Place Value cards to build the number six thousand, seven hundred and forty-seven.**



2 Show 6 749 on the board and read the number several times with the learners.

3 Ask: **How many thousands in 6 749?** (6 Th);
How many hundreds in 6 749 (7 H);
How many tens in 6 749? (4 T);
how many ones in 6 749? (9 O)

4 Repeat the above two steps with the following numbers:
2 492 (2 Th; 4 H; 9 T; 2 O)
5 031 (5 Th; 0 H; 3 T; 1 O)
639 (0 Th; 6 H; 3 T; 9 O)
4 209 (4 Th; 2 H; 0 T; 9 O)

Activity 3: Learners work on their own

Say: **Do Activity 3 in your LAB.**

- Mark the learners work and make sure that they are getting most of the work right.
- The answers are given in brackets in the table below. Learners can do self-assessment and correct their own work as you work through the answers. This will help learners to see where they might be going wrong and to take responsibility for their own learning.

1

		How many thousands?	Add 3 thousands	Because
Example	**3 951**	**3 or three**	**6 951**	**(3 + 3) thousands = 6 thousands. No change in other places.**
a	4 609	(4 or four)	(7 609)	((4 + 3) thousands = 7 thousands No change in other places.)
b	5 899	(5 or five)	(8 899)	((5 + 3) thousands = 8 thousands No change in other places.)
c	2 416	(2 or two)	(5 416)	((2 + 3) thousands = 5 thousands No change in other places.)
d	895	(0 or zero)	(3 895)	((0 + 3) thousands = 3 thousands No change in other places.)

2

		How many thousands?	Subtract 2 thousands	Because
Example	**7 695**	**7 or seven**	**5 695**	**(7 – 2) thousands = 5 thousands No change in other places.**
a	3 450	(3 or three)	(1 450)	((3 – 2) thousands = 1 thousands No change in other places.)
b	6 002	(6 or six)	(4 002)	((6 – 2) thousands = 4 thousands No change in other places.)
c	2 978	(2 or two)	(978)	((2 – 2) thousands = 0 thousands No change in other places.)
d	5 000	(5 or five)	(3 000)	((5 – 2) thousands = 3 thousands No change in other places.)

5 HOMEWORK ACTIVITY (5 MINUTES)

- The homework activities are found at the back of the Learner Activity Book (LAB).
- Briefly explain what learners should do for the homework activity. You could answer the first question with the learners if you think that is necessary.

		ANSWER
1	Write the number four thousand five hundred and eight as a number	(4 508)
2	Draw a circle around the digit that represents thousands in the number 5 798.	(**5**798)
3	How many thousands in 5 123?	(5 or five)
4	Add 5 Th to 4 174	(9 174)
5	Subtract 4 000 from 7 982	(3 982)

6 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

Today we have learnt to say, read, write and work with numbers up to 9 999. These are 4-digit numbers and we have learnt that the position of the digit in a number tells us its value.

Lesson 3: 5-digit numbers

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum.		
CAPS topics: 1.1 Whole numbers		
Lesson Objective: Learners understand the numeration and notation of numbers from 0 to 99 999. Learners will be able to differentiate between even and odd numbers.		
Lesson Vocabulary: altogether, even number, odd number		
Teacher Resources: Individual place value cards, Place value cards (flard cards), Odd numbers and Even numbers flashcards		
Learner Resources: Individual place value cards; Place value cards (flard cards)		
Date:	Week	Day

1 MENTAL MATHS (DO AS MANY QUESTIONS AS YOU CAN IN 5 MINUTES)

	Count forwards in:	Answer
1	5s from 885 to 910	885, 890, 895, 00, 905, 910
2	10s from 880 to 930	880, 890, 900, 910. 920. 930
3	10s from 887 to 937	887, 897, 907, 917, 927, 937
4	20s from 860 to 940	860, 880, 900, 920, 940
	Count backwards in:	
5	In 5s. Start at 915 and end at 880	915, 910, 905, 900, 895, 890, 885
6	In 10s. Start at 915 and end at 885	915, 905, 895, 885
7	In 20s. Start at 940 and end at 860	940, 920, 900, 880, 860
8	In 20s. Start at 930 and end at 870	930, 910, 890, 870

2 LINK TO PREVIOUS LESSON (5 MINUTES)

Revise concepts from previous lesson by asking questions:

- Ask: **How many thousands in 8 496?** (8 thousands)
- Ask: **How many thousands in 4 259?** (4 thousands)
- Ask: **How many thousands in 132?** (0 thousands)
- Ask: **How many thousands do I need to add to 5 439 to get 8 439?** (3 thousands)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

- The answers to the Homework Activity for Lesson 2 are provided in brackets in the activity in Lesson 2. Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson the number range is extended from 4-digit numbers (that is, numbers up to 9 999) to 5-digit numbers (that is, numbers up to 99 999). We follow the same teaching and learning pattern as used in Lessons 1 and 2.

Additional information for the teacher: the definitions of even and odd numbers are simplified to make them suitable for Grade 4 learners. In fact, all numbers are divisible by 2; what we are referring to in these definitions is whether the numbers are divisible by two with no remainder (even numbers) or divisible by two WITH remainder **1** (odd numbers).

Today we are learning to work with 5-digit numbers.

Activity 1: Learners work in pairs

1 Write this word problem on the board: 46 135 people lived in a town in 2012. 50 000 more people moved to the town. How many people now live in the town?

First make sure the learners understand the problem

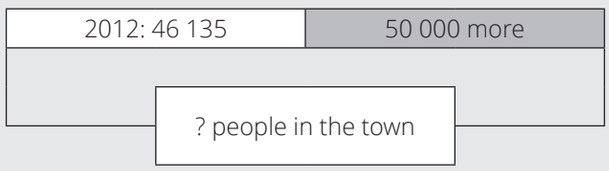
i Read the problem.
ii Let the learners read the problem until they read it fluently.
iii Underline the numbers.

> 46 135 people lived in a town in 2012. 50 000 more people moved to the town. How many people now lived in the town?

iv Underline the question with a wavy line.

> 46 135 people lived in a town in 2012. 50 000 more people moved to the town. How many people now lived in the town?

v The learners reproduce the story with manipulatives or draw diagrams in their classwork books.



vi Let a learner present his/her diagram on the board.
vii Let the learners determine the operation. (Addition; we add; …)

2 **a** Say: **Work with your partner to find the answer. You can use your Place Value cards if you want to.**
b Don't rush to the answer. Give learners time to develop their strategic competence by trying to solve on their own first.

c Place the TTh, Th, H, T and O flashcards on the board, draw columns, leaving space for learners to write their answers

d Ask: **Who would like to write their answer on the board?**

e Allow a few learners to write their answer on the board – leave all answers on the board for discussion.

3 Discuss the two 5-digit numbers mentioned in the word problem:

a Write the number 46 135 on the board.

- Say: **Say this number out loud.**
- Say: **Use your Place Value cards to build the number.**
- Ask: **How many ten thousands are there?** (4)

b Write the number 50 000 on the board.

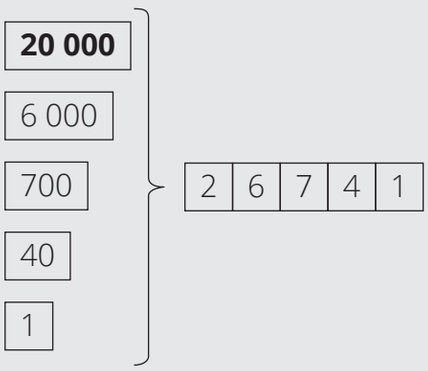
- Say: **Say this number out loud.**
- Say: **Use your Place Value cards to build the number.**
- Ask: **How many ten thousands are there?** (5)

c Say: **Add 46 135 and 50 000 by combining the ones, tens, hundreds, thousands and ten thousands.**

- Say: **Write the answer: 46 135 and 50 000 =** (96 135)
- Say: **Write the answer in words.** (Ninety-six thousand, one hundred and thirty-five)
- Ask: **How many people now live in the town?** (96 135 people)

Activity 2: Learners work in pairs

Say: **Use your Place Value cards to build the number twenty-six thousand, seven hundred and forty-one.**



- **Write 26 741 on the board and read the number several times with the learners.**
- **Ask: How many thousands in 26 741?** (26 thousands)
- Ask: **How many ten thousands in 26 741?** (2 ten thousands).
  If the learners are not sure of why there are two different answers, show the following to the learners:

	Th	H	T	O
2	6	7	4	1

There are 26 Th in the number 26 741

TTh	Th	H	T	O
2	6	7	4	1

There are 2 TTh in the number 26 741

(Additional information for teacher: the value of the digit in each column is 10 times bigger than the value of the column to the right).
Repeat the above steps with the following numbers: 36 798 (36 and 3), 56 871 (56 and 5), 4 987 (4 and 0), 43 204 (43 and 4)

Activity 3: Whole class activity

1 Place the Even Numbers and Odd Numbers flashcards on board.

- Hold up the flashcard: A number that is not divisible by 2.
  Ask: **Who would like to come to the board and place this flashcard under the correct heading?**
  Say: **Yes, you are correct/ No, you are not correct: a number that is not exactly divisible by 2 (i.e. with a remainder) is an *odd number*. A number that is exactly divisible by 2 (i.e. without a remainder) is an *even number*.**
- The learner places the flashcard "A number that is not divisible by 2" under the heading "Odd Numbers".

2 Start with a few smaller numbers:

- Ask: **Is 542 an even or an odd number?** (even). **Why do you say that?** (it is exactly divisible by 2)
- Ask: **Is 1 341 an even or an odd number?** (odd). **Why do you say that?** (it is not exactly divisible by 2 as it has a remainder)
- Ask a few more similar questions, increasing the number range until you get to 5-digit numbers like 23 458 (even) and 45 471 (odd).

3 Do this to lead learners to the conclusion that:

- if the last digit (the ones digit) is an even number (2; 4; 5; 8; 0), then the whole number is an even number
- if the last digit (the ones digit) is an odd number (1; 3; 5; 7; 9), then the whole number is an odd number.

Display the even and odd number flashcards, with their definitions in the classroom so that learners can refer to them.

Activity 4: Learners work on their own

Say: **Do Activity 4 in your LAB.**

- Mark the learners work and make sure that they are getting most of the work right.
- The answers are given in brackets in the 2nd table below. Learners can do self-assessment and correct their own work as you work through the answers. This will help learners to see where they might be going wrong and to take responsibility for their own learning.

1 Draw a line to match the numbers with the correct words

49 671	Forty thousand, six hundred and one
40 601	Forty thousand, six hundred and seventy-one
49 601	Forty-nine thousand, six hundred and seventy-one
40 671	Forty-nine thousand, six hundred and one

2 How many thousands in 48 734? _____

3 How many ten thousands in 48 734? _____

4 Write one even number that is bigger than 39 541 and smaller than 39 549.

_____

5 Write one odd number between 68 908 and 68 915. _____

ANSWERS

1 Draw a line to match the numbers with the correct words

49 671	Forty thousand, six hundred and one
40 601	Forty thousand, six hundred and seventy-one
49 601	Forty-nine thousand, six hundred and seventy-one
40 671	Forty-nine thousand, six hundred and one

2 How many thousands in 48 734? (48 or forty-eight thousands)

3 How many ten thousands in 48 734? (4 or four ten thousands)

4 Write one even number that is bigger than 39 541 and smaller than 39 549. (39 542 or 39 544 or 39 546 or 39 548)

5 Write one odd number between 68 908 and 68 915. (68 909 or 68 911 or 68 913)

5 HOMEWORK ACTIVITY (5 MINUTES)

- Briefly explain what learners should do for the homework activity. You could answer the first question with the learners if you think that is necessary.

		ANSWER
1	How many thousands in 34 596?	(34 or thirty-four thousands)
2	How many ten thousands in 34 596?	(3 or three ten-thousands)
3	Write one odd number that is bigger than 67 453 and smaller than 67 458	(67 455 or 67 457)
4	Write one even number that is bigger than 30 898 and smaller than 30 902	(30 900)
5	Write eighty-four thousand, six hundred and twenty-two in number symbols	(84 622)

6 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

Today we have learnt to work with numbers up to 99 999. These are 5-digit numbers. We have also learnt that even numbers are numbers that are divisible by 2 and odd numbers are not divisible by 2.

Lesson 4: 6-digit numbers

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum.		
CAPS topics: 1.1 Whole numbers		
Lesson Objective: Learners will be able to work with 6-digit numbers and to write numbers in expanded notation.		
Lesson Vocabulary: digit, expanded notation		
Teacher Resources: Individual place value cards		
Learner Resources: Individual place value cards		
Date:	Week	Day

1 MENTAL MATHS (5 MINUTES)

	Count forwards in:	Answer
1	50s from 350 to 600	350, 400, 450, 500, 550, 600
2	50s from 800 to 1 100	800, 850, 900, 950, 1 000; 1 050; 1 010
3	100s from 400 to 700	400, 500, 600, 700
4	100s from 600 to 1 300	600, 700, 800, 900, 1 000; 1 100; 1 200; 1 300
	Count backwards in:	
5	50s from 1 000 to 850	1 000, 950, 900, 850
6	50s from 200 to 0	200, 150, 100, 50, 0
7	100s from 400 to 0	400, 300, 200, 100, 0
8	100s from 1 500 to 900	1 500; 1 400; 1 300; 1 200; 1 100; 1 000, 900

2 LINK TO PREVIOUS LESSON (5 MINUTES)

Revise concepts from previous lesson by asking questions:

- Ask: **How many ten thousands in 48 629?** (4 ten thousand)
- Ask: **How many thousands in 63 209?** (63 thousands. Remind learners that the 6 TTh is 60 Th)
  Again, if the learners are not sure of why there are two different answers, show the following to the learners:

TTh	Th	H	T	O
6	3	2	0	9

There are 6 TTh in the number 63 209

	Th	H	T	O
6	3	2	0	9

There are 63 Th in the number 63 209

(Additional information for teacher: the value of the digit in each column is 10 times bigger than the value of the column to the right).

- Ask: **Is 45 684 an even number? (Yes). Why do you say so?** (It is exactly divisible by 2 / there is a 4 in the One's place / the last digit is an even number)
- Ask: **How many thousands do I need to add to 75 528 to get 80 528?** (5 thousands)
  If learners struggle to answer, display the two numbers in a place value table like this:

	TTh	Th	H	T	O
	7	5	5	2	8
	8	0	2	0	9

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

- The answers to the Homework Activity for Activity 3 are provided in brackets in the activity in Lesson 3. Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

The number range extends to 6-digit numbers (hundred thousands). By now, learners have had multiple opportunities to work with large numbers and the concept of place value. In this lesson, another digit, namely hundred thousand (HTh), is added to the place value table. One hundred thousand is 10 times bigger than one ten thousand (TTh). In this lesson, learners also write numbers in expanded notation – another strategy for developing their concept of place value.

Today we are learning to work with 6-digit numbers and to write numbers in expanded notation.

Activity 1: Learners work in pairs

1 Write the number 100 000 on the board.
- Ask: **How many digits in this number?** (6 digits)
- **We say the number like this: one hundred thousand.**
- Let the learners say the number several times.
- Say: **Use your Place Value cards. Show this number.**
- Ask: **How many ones (0), tens (0), hundreds (0), thousands (0), ten thousands (0) and hundred thousands (1) in this number?**

2 Repeat the above steps for the number 482 375. (5 ones, 7 tens, 3 hundreds, 2 thousands, 8 ten thousands, 4 hundred thousands)
- Ask: **Is the number 482 375 an even number?** (no). Why do you say so? (it is not exactly divisible by 2 or the last digit is not divisible by 2 or the last digit is an odd number, or the last digit is not an even number.)

Say: **Complete Activity 1 in your LAB.**

- Mark the learners work and make sure that they are getting most of the work right.
- The answers are given in brackets in the table below. Learners can do self-assessment and correct their own work as you work through the answers. This will help learners to see where they might be going wrong and to take responsibility for their own learning.

1 Write "Seven hundred and fifteen thousand, three hundred and sixty-two" in number form. (715 362)

2 What digit is in the HTh place in 715 362? (7)

3 What digit is in the TTh place in 715 362? (1)

4 What digit is in the Th place in 715 362? (5)

5 How many HTh must I add to 715 362 to get 915 362? (2 HTh or 200 000)

Activity 2: Learners work on their own

1) Write this number 4 821 on the board and read the number in words several times with the learners.

- Say: **Remember that a number is made up of *digits*. So, the number 4 821 has four digits. Point to each digit in the number as you say: the digits are 4, 8, 2 and 1.**
- Say: **When break up a number into its number values; we are giving the number in *expanded notation*.**
- Say: **We can write 4 821 in expanded notation as follows: 4 000 + 800 + 20 + 1.**

2) Do this example on the board:
Say: **We can write 1 356 in expanded notation in three different ways as follows:**

1 356 =	1 000	+	300	+	50	+	6
	OR						
1 356 =	1 thousand	+	3 hundred	+	5 tens	+	6 ones
	OR						
1 356 =	1 Th	+	3H	+	5 T	+	6 O

3) Do at least one more example on the board with learners.
Show learners what to do with a number like 49 203 where there is a 0 in one of the columns.
Say: **We can write also 49 203 in expanded notation in three different ways as follows:**

49 203 =	40 000	+	9 000	+	200	+	0	+	3
	OR								
49 203 =	4 ten thousand	+	9 thousand	+	2 hundred	+	0 tens	+	3 ones
	OR								
49 203 =	4 T Th	+	9 Th	+	2 H	+	0 T	+	3 O

Say: **Do Activity 2 in your LAB**

- Mark the learners work and make sure that they are getting most of the work right.
- The answers are given in brackets in the table below. Learners can do self-assessment and correct their own work as you work through the answers. This will help learners to see where they might be going wrong and to take responsibility for their own learning.

Write these numbers in expanded notation:

1 4 521 = (4 000 + 500 + 20 + 1
OR 4 thousand + 5 hundred + 2 ten + 1 one
OR 4 Th + 5 H + 2 T + 1)

2) 4 021 = (4 000 + 20 + 1
OR 4 thousand + 0 hundred + 2 ten + 1 one
OR 4 Th + 0 H + 2 T + 1 O)

3) 87 235 = (80 000 + 7 000 + 200 + 30 + 5
OR 8 ten thousand + 7 thousand + 2 hundred + 3 tens + 5 ones
OR 8 TTh + 7 Th + 2 H + 3 T + 5 O)

4) 80 235 = (80 000 + 200 + 30 + 5
OR 8 ten thousand + 0 thousand + 2 hundred + 3 tens + 5 ones
OR 8 T Th + 0 Th + 2 H + 3 T + 5 O)

5) 6 470 = (6 000 + 400 + 70
OR 6 thousand + 4 hundred + 7 tens + 0 ones
OR 6 Th +4 H + 7 T + 0 O)

5 HOMEWORK ACTIVITY (5 MINUTES)

- Briefly explain what learners should do for the homework activity. You could answer the first question with the learners if you think that is necessary.

1	Underline the HTh digits in this number:	(761 379)
2	Write the number "Three hundred and forty-nine thousand, seven hundred and twenty-six" in number form.	(349 726)
3	How many HTh must I subtract from 756 411 to get 56 411? HTh TTh Th H T O 7 5 6 4 1 1 —	(7 or seven HTh)
	5 6 4 1 1	
4	Write the number 128 563 in expanded notation.	(1 HTh + 2 TTh + 8 Th + 5 H + 6 T + 3 one OR 100 000 + 20 000 + 8 000 + 500 + 60 + 3 OR 1 hundred thousand + 2 ten thousand + 8 thousand + 5 hundred + 6 ten + 3 ones)
5	Write the number 304 621 in expanded notation	(3 HTh + 0 TTh + 4 Th + 6 H + 2 T + 1 ones OR 300 000 + 4 000 + 600 + 20 + 1 OR 3 hundred thousand + 4 thousand + 6 hundred + 2 ten + 1 one)

6 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 6-digit numbers. We have also learnt how to write numbers in expanded notation.

Lesson 5: Order, compare and represent numbers

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum.
CAPS topics: 1.1 Whole numbers
Lesson Objective: Learners will be able to order, compare and represent numbers up to 5-digits.
Lesson Vocabulary: compare, order, bigger than, greater than, smaller than, less than, number line, number sentence
Teacher Resources: Individual place value cards <, >, = flashcards Number line flash cards
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

	Count forwards	Answer
1	Start at 450. Count forwards in 100s to 850	450, 550, 650, 750, 850
2	Start at 572. Count forwards in 100s to 972	572, 672, 772, 872, 972
3	Start at 1. Count forwards in 100s to 501	1, 101, 201, 301, 401, 501
4	Start at 399. Count forwards in 100s to 799	399, 499, 599, 699, 799
	Count backwards	
5	Start at 437. Count backwards in 100s to 37	437, 337, 237, 137, 37
6	Start at 509. Count backwards in 100s to 9	509, 409, 309, 209, 109, 9
7	Start at 511. Count backwards in 100s to 11	511, 411, 311, 211, 111, 11
8	Start at 632. Count backwards in 100s to 232	632, 532, 432, 332, 232

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Ask: **How many hundred thousands in 789 246?** (7 hundred thousand)
- Ask: **How many ten thousands in 432 781?** (43 ten thousands)
  (Remind learners that the 4 HTh 3 TTh is equal to 43 TTh)

  If necessary, revise the following with the learners:

HTh	TTh	Th	H	T	U
4	3	2	7	8	1

There are 4 HTh in the number 432 781

	TTh	Th	H	T	U
4	3	2	7	8	1

There are 43 TTh in the number 432 781

(Remember: the value of the digit in each column is 10 times bigger than the value of the column to the right).

- Ask: **Is 182 341 an even number?** (No). **Why do you say so?** (It is not exactly divisible by 2 / the last digit is 1 and 1 is an odd number)
- Ask: **Write 457 810 in expanded notation** (4 HTh + 5 TTh + 7 Th + 8 H + 1 T + 0 ones or any other variation of expanded notation.)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

- The answers to the Homework Activity for Lesson 4 are provided in brackets in the activity in Lesson 4. Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson, learners compare, order and represent 5-digit numbers. By the end of the Foundation Phase, learners have compared and ordered numbers up to 1 000. They have also dealt with comparison in the context of measurement. A concept that some learners struggle to understand is that comparison is relative. For example, 4 is bigger than 3, but smaller than 5. Be sure to use language carefully when talking about comparing numbers.

Today we are learning to order, compare and show numbers up to 99 999.

Activity 1: Learners work on their own

– Use the <, > and = flashcards as required.

1 Before the lesson, write this table on the board:
The number of people that watched a football tournament over two days were:

On Saturday	**27 050**
On Sunday	**24 900**

– Say: **We want to find out when more people watched football**
– Ask: **How do we compare these two numbers?** (we compare numbers from the biggest place value.)
– Say: **The biggest place value is ten thousand, but both numbers have a 2 in the TTh column.**
– Say: **We then move to the second biggest place value which is thousand. Now we can see which one is bigger.**
– Say: The Th column should be compared as it is the biggest place value that is different.

	TTh	Th	H	T	0
On Saturday	2	7	0	5	0
On Sunday	2	4	9	0	0

– Say: **More people watched football on Saturday.**

- Write on the board: **27 050 > 24 900.**
- Say: **Remember that we use the > symbol to show which number is bigger or greater or more.**

2 Write on the board: **24 900 27 050**

- Ask: **Who would like to come to the board and place this symbol to show which number is bigger and which is smaller?** (24 900 < 27 050). **We say 24 900 is less than 27 050.**

Say: **Do Activity 1 in your LAB**

- As the learners complete each activity, mark the learners work and make sure that they are getting most of the work right.
- The answers are given in brackets. Learners can do self-assessment and correct their own work as you work through the answers. This will help learners to see where they might be going wrong and to take responsibility for their own learning.

Fill in <, > or = to make the number sentence true

1	18 432 …….. 18 532	(18 432 < 18 532)
2	26 299 …….. 25 000	(26 299 > 25 000)
3	8 999 …….. 80 999	(8 999 < 80 999)
4	78 562 …….. 78 562	(78 562 = 78 562)
5	20 002 …….. 20 001	(20 002 > 20 001)

Activity 2: Learners work in pairs

1) Say: **When we *order* numbers, we write them from smallest to biggest or biggest to smallest.**

- Say: **We need to compare the numbers so that we can write them in order.**

2) Say: **Let's write these numbers in order from smallest to biggest.**

- Write the following numbers under each other on the board, as this makes them easier to compare:

  354
  435
  345
  453

- Say: **The smallest number of hundreds is 3.**
  Let's compare 354 and 345.
  345 is smaller than 354 because it has less tens.

- Say: **Let's compare 435 and 453.**
  Both numbers have 4 tens.
  435 is smaller than 453 because 435 only has 3 tens while 453 has 4 tens.
- Say: **So, the numbers from smallest to biggest are 345; 354; 435; 453**

Say: **Do Activity 2 in your LAB** and then discuss the answers with the learners.

- As the learners complete each activity, mark the learners work and make sure that they are getting most of the work right.

Write the numbers from smallest to biggest	**ANSWERS**
1. 1 567; 1 245; 3 465; 9 982	(1 245; 1 567; 3 465; 9 982)
2. 80 974; 66 745; 8 512	(8 512; 66 745; 80 974)

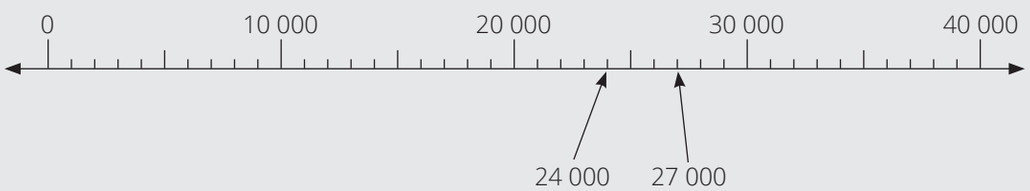
Activity 3: Learners work in pairs

Say: **Let's show the number of people that watched the football match on a *number line*.**

On Saturday	**27 000**
On Sunday	**24 900**

- Say: **A straight line with numbers written on like this it is called a number line.**

- Say: **We can show the number of people that watched the football match on a number line like this:**



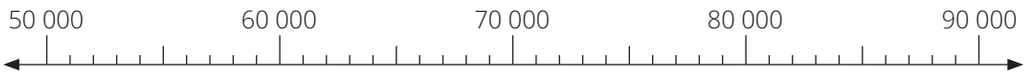
- From the number line we can see that 27 000 > 24 000.

Say: **Do Activity 3 in your LAB** and then discuss the answers with the learners.

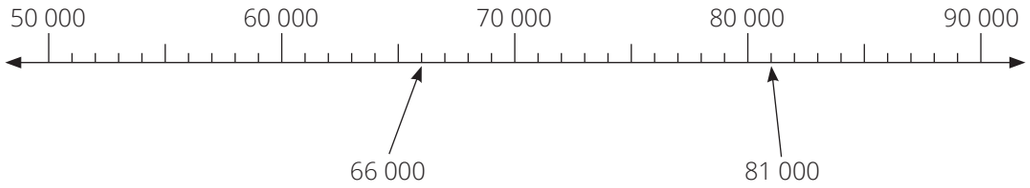
- As the learners complete each activity, mark the learners work and make sure that they are getting most of the work right.

Note: You might need to support learners with working out and counting the intervals on each number line.

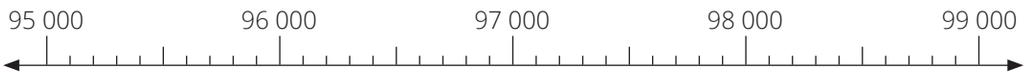
1 Show the numbers 66 000 and 81 000 on this number line:



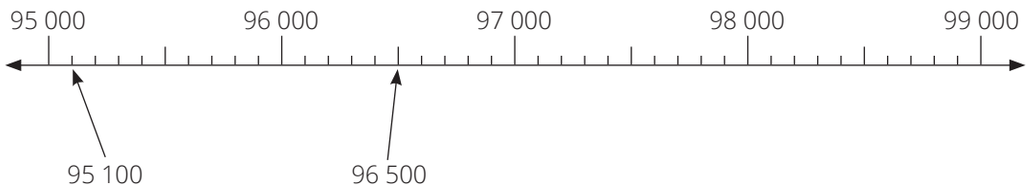
ANSWER



2 Show the numbers 95 100 and 96 500 on this number line:

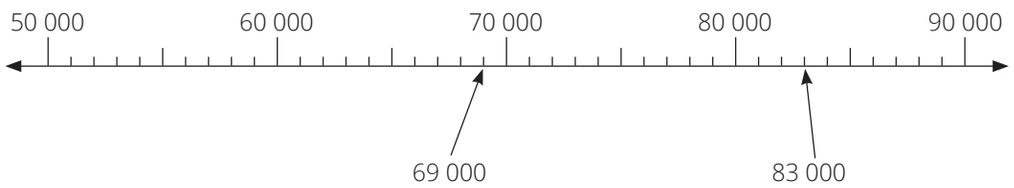


ANSWER



5 HOMEWORK ACTIVITY (5 MINUTES)

- Discuss the homework activity with learners. Refer them to the lesson activities if they need further support.
  - Question 1 is from Activity 1.
  - Question 2 is from Activity 2.
  - Question 3 is from Activity 3

		ANSWERS
1	Fill in <, > or = to make the number sentence true 61 321..... 60 231	(61 321 > 60 231)
2	Write these numbers from biggest to smallest: 48 933; 38 393; 43 585	(38 393; 43 585; 48 933)
3	Show 69 000 and 83 000 on the number line  **ANSWER** 	

6 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 order and compare big numbers by comparing from the biggest place value. We have also learnt to show numbers on a number line.

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: 1.1 Whole numbers
Lesson Objective: Learners will be able to order, compare and represent numbers up to 6-digits
Lesson Vocabulary: more than, less than, between
Teacher Resources: <, > and = flashcards
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

		Answer
1	List the multiples of 1 000 from 0 to 6 000	0, 1 000, 2 000, 3 000, 4 000, 5 000, 6 000
2	List the multiples of 1 000 between 0 and 6 000	1 000, 2 000, 3 000, 4000, 5 000
3	List the multiples of 1 000 from 5 000 to 10 000	5 000, 6 000, 7 000, 8 000, 9 000, 10 000
4	List the multiples of 1 000 between 5 000 and 10 000	6 000, 7 000, 8 000, 9000
5	6 × 1 000	6 000
6	1 000 × 4	4 000

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Write the number 239 476 on the board and read it several times with the learners.
  Ask: **How many hundred thousand in the number 'two hundred and thirty-nine thousand, four hundred and seventy-six'?** (2 or two hundred thousand)
- Write the number 67 004 on the board and read it with the learners several times.
  Let the learners write sixty-seven thousand and four in their classwork books.
  Ask: **What number is ten thousand less than sixty-seven thousand and four?** (57 004)
- Write the numbers 46 206 and 64 206 on the board and read the numbers several times with the learners.
  Ask: **Which number is bigger?** (64 206)
  Ask: **Why do you say this?** (64 206 has 6 ten thousand while 46 206 only has 4 ten thousands)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

- The answers to the Homework Activity for Lesson 5 are provided in brackets in lesson 5. Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This lesson is a continuation of the previous lesson. The only difference is that the number range is extended to 6-digit numbers.

Be sure to say numbers in words in full.

For example, say 'forty-eight thousand, three hundred and twenty-one', rather than saying 'four, eight, three, two, one'. This helps reinforce place value, especially in big numbers.

Today we are learning to compare, order and write or draw numbers up to 999 999.

Activity 1: Learners work on their own

1 Say: You have already compared and ordered big numbers. Today we will compare numbers up to 1 million. We follow the same processes as we used in the last lesson.

2 Write these two numbers on the board like this:
Read the numbers out loud several times with the learners.

HTh	Th	H	T	0
4	8	3	2	1
4	6	5	6	7

a Say: **Let's compare these two numbers. Remember that when we compare, we are trying to find out which is bigger, and which is smaller.**

b Say, pointing at the same time: **Start with the biggest place value. In this example it is HTh. Both numbers have 4 HTh, so that doesn't help us to compare the numbers.**

c Say, pointing at the same time: **Move to the next biggest place value, which is TTh. There are 8 TTh in the number 48 321 and 6 TTh in the number 46 567. This means that 48 321 is bigger than, or greater than the number 46 567.**

d Say: **We do not need to compare the other place values because we already know that 48 321 is bigger than 46 567.**

e Say and write: **48 321 > 46 567.**

Say: **Do Activity 1 in your LAB**

- As the learners complete each activity, mark the learners work and make sure that they are getting most of the work right.

Fill in <, > or = to make the number sentence true	ANSWERS
1 189 612 …….. 187 354	(189 612 > 187 354)
2 145 368 …….. 145 668	(145 368 < 145 668)
3 132 206 …….. 132 206	(132 206 = 132 206)
4 46 200 …….. 246 200	(46 200 < 246 200)
5 99 999 …….. 99 998	(99 999 > 99 998)

Activity 2: Learners work in pairs

1 Say: **When we *order* numbers, we arrange them from biggest to smallest or smallest to biggest.**
Ask: **What do we need to do?** (We need to compare numbers so that we can order them.)

2 Write the following numbers on the board and read them out loud several times with the learners.
365 249 345 987 365 250 465 249

- Say: **Write these numbers from smallest to biggest.**
- Say and point: **There are three numbers that start with 3 HTh. Compare these three numbers.**
  : 345 987 is the smallest number because it has 4 TTh
  : The first four digits of 365 249 and 365 250 are the same so we look at the digits in the Ts position
  : 365 249 is second smallest because it has 4 T
  : 365 250 is next biggest because it has 5 T
  : 465 249 is biggest because it has 4 HTh
- Say and write: **The numbers in order from smallest to biggest:**
  345 987 365 249 365 250 465 249

Say: **Do Activity 2 in your LAB**.

- As the learners complete each activity, mark the learners work and make sure that they are getting most of the work right.

1. Arrange these numbers from biggest to smallest:
98 456 89 467 9 467 99 231 99 201
(99 231 99 201 98 456 89 467 9 467)

2. Arrange these numbers from smallest to biggest:
20 010 21 000 20 100 21 100 20 001
(20 001 20 010 20 100 21 000 21 100)

Activity 3: Learners work on their own

1 Say: **Remember that a number that lies between two other numbers is bigger than the smaller number and smaller than the bigger number.**

2 Write these two numbers on the board: 567 287 567 289
- Ask: **What number lies between 567 287 and 567 289?** (567 288)

3 Say: **Sometimes there can be more than one number that occurs between two other numbers.**
- Write these two numbers on the board: 311 999 312 002
- Ask: **What numbers occur between 311 999 and 312 002?** (312 000 and 312 001)

Say: **Do Activity 3 in your LAB.**

- As the learners complete each activity, mark the learners work and make sure that they are getting most of the work right.

1	Write the number between 346 296 and 346 298	(346 297)
2	Write the number between 271 369 and 271 371	(271 370)
3	Write an even number between 456 712 and 456 716	(456 714)
4	Write an odd number between 267 947 and 267 950	(267 949)

- If learners struggle with Activity 3, encourage them to use number lines or the place value table to help them.

4 CORRECT CLASSWORK ACTIVITIES (10 MINUTES)

- Make sure that the learners understand the work and have got the answers correct.

5 HOMEWORK ACTIVITY (5 MINUTES)

		ANSWER
1	How many hundred thousands in 380 645?	(3 HTh or three hundred thousands)
2	Compare the two numbers by writing < or >: 32 681 32 677	(32 681 > 32 677)
3	Write < or > to make the number sentence true: 145 401 145 410	(145 401 < 145 410)
4	Write these numbers in order from smallest to biggest: 144 509 4 567 104 569 140 589	(4 567; 104 569; 140 589; 144 509)
5	How many HTh must I add to 69 871 to get 169 871?	(1 HTh)

6 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 order, compare and represent numbers up to 1 million.

Lesson 7: Consolidation

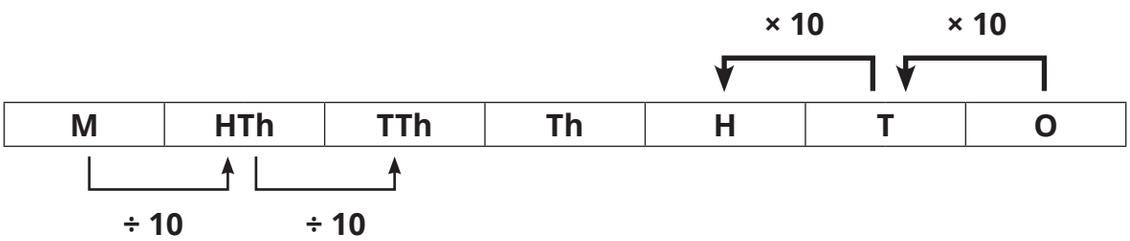
Teacher's notes
This lesson allows for consolidation of the previous weeks' lesson content.
CAPS topics: 1.1 Whole numbers
Lesson Objective: Learners will revise the representation, comparison and ordering of numbers up to 999 999.
Lesson Vocabulary: digit, place value add, subtract altogether, even number, odd number digit, expanded notation compare, order, bigger than, greater than, smaller than, less than, number line, number sentence, more than, less than, between
Teacher Resources: Base 10 kit, Place value cards (flard cards), Individual place value cards
Date: Week Day

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

In the last six lessons learners represented numbers up to 999 999 practically using Base 10 kits and Place Value cards (flard cards), and more abstractly by writing the numbers and identifying the digits representing different place values. In previous years learners have done the basic addition and subtraction of large numbers (without exchange) and compared and ordered numbers.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

Learners sometimes struggle to understand that in the decimal system, each place value is 10× larger than the place value to the right.



Some learners do not grasp the concept of 0 as a placeholder. For example, they may think that 49 is the same as 409.

3 MENTAL MATHS (5 MINUTES)

		Answer
1	List the multiples of 1 000 from 20 000 to 25 000	20 000, 21 000, 22 000, 23 000, 24 000, 25 000
2	List the multiples of 10 000 from 650 000 to 700 000	650 000, 660 000, 670 000, 680 000, 690 000, 700 000
3	List the multiples of 100 000 from 300 000 to 800 000	300 000, 400 000, 500 000, 60 000,700 000, 800 000
4	45 × 1 thousand	45 thousand or 45 000
5	32 × 1 ten thousand	32 ten thousand or 320 000
6	6 × 1 hundred thousand	6 hundred thousand or 600 000

5 HOMEWORK

- The answer to the Homework Activity for Lesson 6 are provided in brackets in the activity in Lesson 6. Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

6 LESSON CONTENT

Today we are going over what we have learned this week. We are revising ordering, comparing and representing numbers up to 999 999.

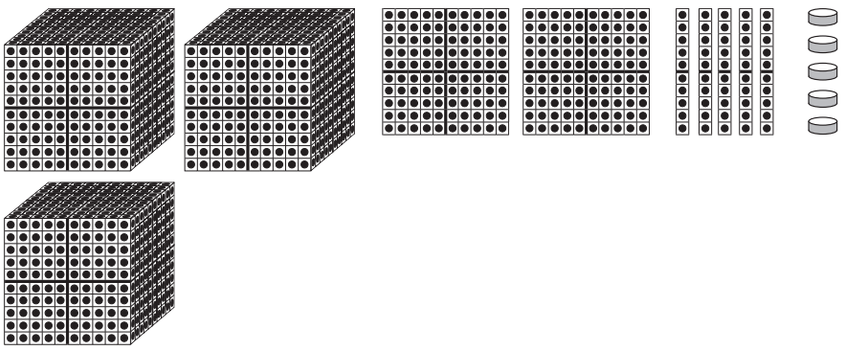
This table comes from the beginning of the unit and references the page numbers of other sources (including textbooks) if you need additional activities. Select activities from the textbook/s you have for the learners to work on. Use the answers in the Teacher's Guide (TG) to mark the work.

	Fabulous	Oxford Headstart	Oxford Successful	Platinum	Premier	Sasol Inzalo	Solutions for All	Study & Master	Viva
LB	19-24	9-16	10-15	4-7	1-4	3-16	1-3	2-7	2-5
TG	10-13	28-35	38, 88, 141, 173	3-7, 45, 90, 121	2, 28, 92	1-18	1, 65, 203	2-6	6-7, 12

OR, learners could complete this Consolidation Activity in their LAB.

Consolidation Activity

1 Write the number represented by the Base 10 blocks:



(3 245)

2 What number is represented on the Place Value cards:

(13 408)

3 Underline the HTh digit in the number 671 304. (671 304)

4 What is the place value of the digit underlined in the number 9<u>0</u> 285? (Th or thousands)

5 Fill in <, > or = to make the number sentences true.

a 348 980 …….. 438 980 (348 980 < 438 980)

b 871 456 …….. 871 456 (871 456 = 871 456)

c 29 709 …….. 129 710 (29 709 < 129 710)

6 Write the numbers in order from smallest to biggest:

145 670 146 670 158 798 159 000 45 670

(45 670; 145 670; 146 670; 158 798; 159 000)

7 Write the numbers in expanded notation:

a 567 924 (567 924 = 500 000 + 60 000 + 7 000 + 900 + 20 + 4 (or any other mathematically correct representation))

b 608 002 (608 002 = 6 HTh + 0 TTh + 8 Th + 0 H + 0 T + 2 ones (or any other mathematically correct representation))

5 CORRECT CONSOLIDATION ACTIVITIES (10 MINUTES)

The answers are given in the Consolidation activity or are in the TG of the textbook you are using for consolidation.

6 REFLECTION AND SUMMARY OF LESSON

Today we have revised the representation, ordering and comparison of numbers up to 999 999.

Lesson 8: Adding and subtracting

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum.
CAPS topics: 1.1 Whole numbers: Addition and subtraction
Lesson Objective: Learners will add and subtract 5-digit and 6-digit numbers based on the relative size of the numbers
Lesson Vocabulary: total, add, subtract, difference, calculate, plus, multiplication facts
Teacher Resources: Individual place value cards
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

	What is ...	Answer		What is ...	Answer
1	8 + 7 =	15	**6**	14 – 4 =	10
2	4 + 9 =	13	**7**	87 + 5 =	92
3	56 + 3 =	59	**8**	81 – 5 =	76
4	56 – 3 =	53	**9**	43 + 9 =	52
5	14 + 4	18	**10**	43 – 9 =	34

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Ask: **What number will I get if I subtract three thousand from 15 000?** (12 000)
- Ask: **How many ten thousands do I need to add to 60 000 to get 80 000?** (2 TTh or 20 000)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

There was no homework activity in the consolidation activity.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson, learners add and subtract large numbers (5-digit and 6-digit numbers) based on the relative size of the numbers. For example: to calculate 14 000 + 5 000, we can say 14 thousands and 5 thousands and calculate (14 + 5 = 19) thousand and then get to 19 000. Learners build on what they learnt in the Foundation Phase when they added and subtracted 2-digit and 3-digit numbers.

Today we are learning to add and subtract large numbers.

Activity 1: Learners work in pairs

1 Say, and write the following word problem on the board:
Sipho's car has done 16 000 kilometres and Zozi's car has done 8 000 kilometres. How many kilometres did the cars travel in total?

First make sure that the learners understand the problem

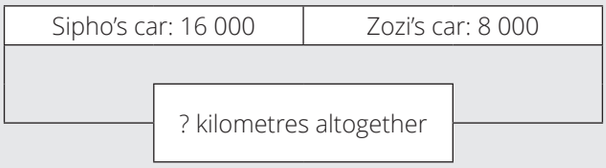
i Read the problem.
ii Let the learners read the problem until they read it fluently.
iii Underline the numbers.

> Sipho's car has done 16 000 kilometres and Zozi's car has done 8 000 kilometres. How many kilometres did the cars travel in total?

iv Underline the question with a wavy line.

> Sipho's car has done 16 000 kilometres and Zozi's car has done 8 000 kilometres. How many kilometres did the cars travel in total?

v The learners reproduce the story with manipulatives or by drawing diagrams in their classwork books.

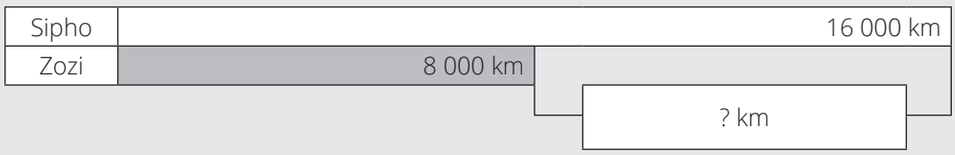


vi Let a learner present his/her diagram on the board.
vii Let the learners determine the operation. (Addition; we add; …)
viii Let the learners write their number sentences in their classwork books.

2
- Let several learners write their number sentences on the board for discussion. (16 000 + 8 000 = ☐)
- Let the learners work out the problem and find the answer.
- Ask: **How did you find the answer?** (I remember that in Grade 3 I did 7 tens + 4 tens = 11 tens. So now I know that 16 thousands + 8 thousands = 24 thousands or 24 000.)
- Say: **16 + 8 = 24. But in the example 16 is actually 16 000 and 8 is actually 8 000. So, 16 000 + 8 000 = 24 000 kilometres.**
- Say: **Don't forget the units – in this example, kilometres.**

3 Ask: What is the difference between the distances travelled by the two cars?

- Draw a diagram on the board:



- Say: **Who would like to come to the board to write the number sentence?** (16 000 – 8 000 = ☐)
- Ask: **Why do we do subtraction?** (We do subtraction because we are looking for the difference between Sipho's kilometres and Zozi's kilometres.)
- Say: **16 – 8 = 8. But in this example 16 is actually 16 000 and 8 is actually 8 000. So, 16 000 – 8 000 = 8 000 kilometres**
- Say: **Don't forget the units – in this example, kilometres.**

Say: **Do Activity 1 in your LAB. Once they are finished, discuss the answers with the learners.**

	Calculate:	**ANSWERS**
1	6 000 + 8 000 =	(14 000)
2	50 000 + 30 000 =	(80 000)
3	200 000 + 90 000 =	(290 000)
4	19 000 – 11 000 =	(8 000)
5	50 000 – 1 000 =	(49 000)
6	750 000 – 50 000 =	(700 000)

Activity 2: Learners work on their own

1 Ask, and write the words on the board: **Four hundred thousand plus five hundred thousand.**

- Let learners write the number sentence and find the answer in their classwork books individually.
- Let some learners write their number sentences on the board for discussion. (It should be 400 000 + 500 000 = ☐.)
- Let a learner explain: **4 + 5 = 9 but, in this example, the 4 is four hundred thousand and the 5 is five hundred thousand so 4 HTh + 5 HTh = 9 HTh or 400 000 + 500 000 = 900 000.**
- Let the learners do the correction in their classwork books, if necessary.

2 Ask: **What is six hundred thousand minus five hundred thousand?**
(6 HTh – 5 HTh = 1 HTh or 600 000 – 500 000 = (6 – 5) hundred thousand = 1 hundred thousand = 100 000)

Say: **Do Activity 2 in your LAB.** Once they are finished, discuss the answers with the learners.

Calculate:	Answer	Rewrite the Number Sentence
1 3 HTh + 5 HTh =	8 HTh	300 000 + 500 000 = 800 000
2 15 TTh + 7 TTh =	(22 TTh)	(150 000 + 70 000 = 220 000)
3 Forty thousand + seventeen thousand =	(57 thousand)	(40 000 + 17 000 = 57 000)
4 13 TTh – 4 TTh =	(9 TTh)	(130 000 – 40 000 = 90 000)
5 47 TTh – 40 TTh =	(7 TTh)	(470 000 – 400 000 = 70 000)
6 46 thousand – 13 thousand =	(33 thousand)	(46 000 – 13 000 = 33 000)

Activity 3: Learners work on their own

- Note that the two calculations given will assist the learners with finding the answer to the calculations.
- Say: **Look at Activity 3 in your LAB. Let's start Activity 3 together.**
- Work through question 1 with the whole class:
  We are told that 45 + 19 = 64 and are asked to find 45 000 + 19 000.
  If 45 + 19 = 64, then 45 000 + 19 000 = 64 000

Find answers to the calculations.

Use 45 + 19 = 64, and 53 – 19 = 34 to help you find the answers.

1	45 000 + 19 000 =	(64 000 or 64 Th)
2	530 000 – 190 000 =	(340 000)
3	45 TTh + 19 TTh =	(64 TTh)
4	530 000 – 190 000 =	(340 000)

- Once they are finished, discuss the answers with the learners.

5 HOMEWORK ACTIVITY (5 MINUTES)

- Refer learners to the homework activity for Week 2, Lesson 2. Remember that the homework activities are at the back of the LAB.

	Calculate	**Answer**	**Rewrite the Number Sentence**
1	3 HTh + 7 HTh =	10 HTh	(300 000 + 700 000 = 1 000 000)
2	17 TTh – 7 TTh =	(10 TTh)	(170 000 – 70 000 = 100 000)
3	830 000 – 130 000 =	(700 000)	
4	15 thousand – 9 thousand =	(6 thousand)	(15 000 – 9 000 = 6 000)
5	140 Th – 50 Th =	(90 Th)	(140 000 – 50 000 = 90 000)

6 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 one way of adding and subtracting large numbers.

Lesson 9: Multiplying by 10, 100, 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: 1.1 Whole numbers
Lesson Objective: Learners will know how to multiply whole numbers by 10, 100 and 1 000.
Lesson Vocabulary: multiply
Teacher Resources: Multiplying flash card
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

		Answer
1	List the multiples of 10 from 0 to 60	0, 10, 20, 30, 40, 50, 60
2	List the multiples of 10 from 290 to 340	290, 300, 310, 320, 330, 340
3	List the multiples of 10 between 570 and 620	580, 590, 600, 610
4	List the multiples of 10 between 960 and 1 000	970, 980, 990
5	39 × 10	390
6	10 × 43	430

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Revise the main concepts from the previous lesson by asking questions.
- You will need to write the numbers or words on the board as they are large numbers and learners might not be able to memorise them if they are only given orally.
- Learners write the answers in their classwork books.
- Ask and write: **What is 13 TTh + 13 TTh?** (26 TTH)
- Ask and write: **What is the sum of 30 000 and 18 000?** (48 000)
- Ask and write: **What is 100 000 – 30 000?** (70 000)
- Ask and write: **What is fourteen thousand minus ten thousand?** (Four thousand / 4 000)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

- The answer to the Homework Activity for Lesson 8 are provided in brackets in the activity in Lesson 8. Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson, learners do activities which will help them understand the relationship between multiplying by 10, 100 and 1 000. Do not jump straight to giving learners rules for

multiplying by 10, 100 and 1 000. It is important to give learners the opportunity to look for patterns and to try to work out the rules themselves.

Today we are learning to multiply by 10, 100 and 1 000.

Activity 1: Learners work in pairs

1 Say, and write the following word problem on the board:
If one sweet costs 40 cents, how much will 10 sweets cost?

First make sure that the learners understand the problem

i Read the problem.
ii Let the learners read the problem until they read it fluently.
iii Underline the numbers.

If one sweet costs 40 cents, how much will 10 sweets cost?

iv Underline the question with a wavy line.

If one sweet costs 40 cents, how much will 10 sweets cost?

v The learners reproduce the story with manipulatives or draw diagrams in their classwork books.

40 c	40 c	40 c	40 c	40 c	40 c	40 c	40 c	40 c	40 c

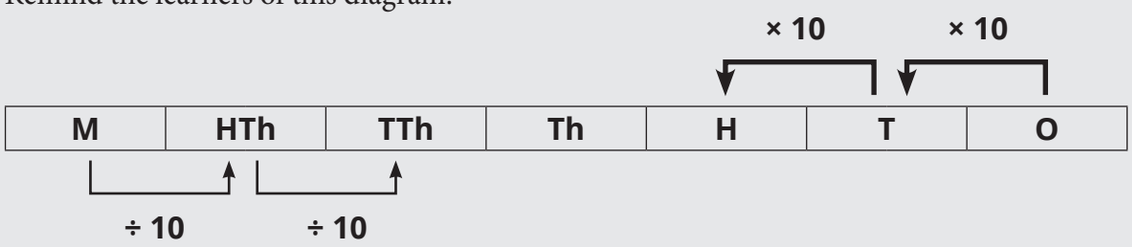
vi Let a learner present his/her diagram on the board.
vii Let the learners determine the operation. (Multiplication; 10 groups of 40)
viii Let the learners write their number sentences in their classwork books and find the answer.
ix Write the answer on the board: 10 × 40 = □
x Say: **When we multiply 10 by 40, we get 400.**
Remember, 10 × 40 = 400 AND 40 × 10 = 400.
Say: **10 sweets will cost 400 cents**

Say: **Work with your partner to do Activity 1 in your LAB.**

- As the learners complete each activity, mark the learners work and make sure that they are getting most of the work right. Once they have finished the activity, discuss the rules in order to reach a conclusion about a rule.

1	1 × 10 = (10)	1 × 100 = (100)	1 × 1 000 = (1 000)
2	2 × 10 = (20)	2 × 100 = (200)	2 × 1 000 = (2 000)
3	9 × 10 = (90)	9 × 100 = (900)	9 × 1 000 = (9 000)
4	15 × 10 = (150)	15 × 100 = (1 500)	15 × 1 000 =
5	37 × 10 = (370)	37 × 100 = (3 700)	37 × 1 000 =
6	48 × 10 = (480)	48 × 100 = (4 800)	48 × 1 000 = 48 000
7	73 × 10 = (730)	73 × 100 = (7 300)	73 × 1 000 = 73 000
8	Discuss a rule that we can use for multiplying by 10 (Move each digit 1 place to the left and then fill in one zero in the one's position.)	Discuss a rule that we can use for multiplying by 100 (Move each digit 2 places to the left and then fill in a zero in the ten's position and the one's position.)	Discuss a rule that we can use for multiplying by 1 000 (Move each digit 3 place to the left and then fill in a zero in the hundred's position and the ten's position and the one's position.)

Remind the learners of this diagram:



- Correct Activity 1 before the learners start on Activity 2.

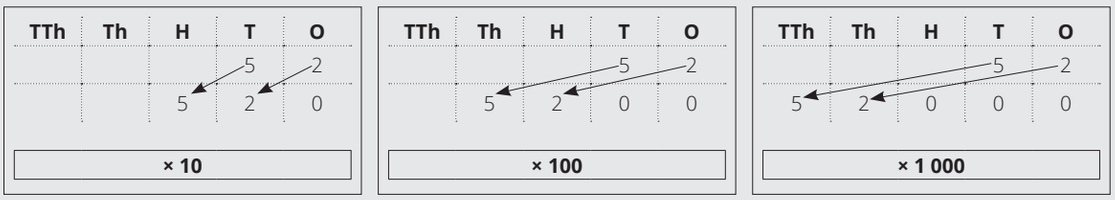
Activity 2: Learners work in pairs

1 Draw learners' attention to the patterns which emerge in the answers to Activity 1. Point out that:
- **Numbers that have been multiplied by 10 have one zero in the One's position on the right / at the end of the number.**
- **Numbers that have been multiplied by 100 have a zero in the Ten's position and a zero in the One's position on the right / at the end of the number.**
- **Numbers that have been multiplied by 1 000 have a zero in the Hundred's position, a zero in the Ten's position and a zero in the One's position on the right / at the end of the number.**

2 Discuss the rules for multiplying by 10, 100, 1 000:
- **To multiply a whole number by 10, we move each digit 1 place to the left and then write a zero in the One's position.**
- **To multiply a whole number by 100, we move each digit 2 places to the left and then write a zero in the Ten's position and a zero in the One's position.**

– **To multiply a whole number by 1 000, we move each digit 3 places to the left and then write a zero in the Hundred's position, a zero in the Ten's position and a zero in the One's position.**

3) Support concept development by putting up the Multiplication Charts:



Say: **Do Activity 2 in your LAB.**

- As the learners complete each activity, mark the learners work and make sure that they are getting most of the work right.

	Calculate	ANSWER
1	8 × 100 =	(800)
2	17 × 10 =	(170)
3	7 × 1 000 =	(7 000)
4	22 × 100 =	(2 200)
5	123 × 10 =	(1 230)
6	34 × 1 000 =	(34 000)
7	421 × 100 =	(42 100)
8	629 × 1 000 =	(629 000)
9	3 500 × 10 =	(35 000)
10	250 × 1 000 =	(250 000)

5 HOMEWORK ACTIVITY (5 MINUTES)

- Refer learners to the homework activity in their LAB. Read through the word problems. Ensure that learners understand the language and know what they are being asked.

1	If one banana costs 95 cents, how many cents will 10 bananas cost?	(950 cents)
2	If one banana costs 95 cents, how many cents will 100 bananas cost?	(9 500 cents)
3	16 × 1 000	(16 000)
4	143 × 100	(14 300)

6 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 multiply by 10, 100 and 1 000.
We know:

- To multiply a whole number by 10, we move each digit 1 place to the left and then write a zero in the One's position.
- To multiply a whole number by 100, we move each digit 2 places to the left and then write a zero in the Ten's and in the One's positions.
- To multiply a whole number by 1 000, we move each digit 3 places to the left and then write a zero in the Hundred's position, in the Ten's position and in the One's position.

Lesson 10: Dividing by 10, 100, 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: 1.1 Whole numbers
Lesson Objective: Learners will know how to divide whole numbers by 10, 100 and 1 000.
Lesson Vocabulary: divide
Teacher Resources: Multiplying flash card; Dividing flash card
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

		Answer
1	List the multiples of 100 from 900 to 1 400	900, 1 000, 1 100, 1 200, 1 300, 1 400
2	List the multiples of 100 between 6 400 and 7 000	6 500, 6 600, 6 700, 6 800, 6 900
3	List the multiples of 100 from 7 800 to 8 200	7 800, 7 900, 8 000, 8 100, 8 200
4	List the multiples of 100 between 0 and 800	100, 200, 300, 400, 500, 600, 700
5	43 ×100	4 300
6	100 × 60	6 000

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Ask, and write the numbers: **How much will 10 shirts cost if 1 shirt costs R25?** (R250)
- Ask, and write the numbers: **How much will 100 shirts cost if 1 shirt costs R25?** (R2 500)
- Ask, and write the numbers: **How much will 1 000 shirts cost if 1 shirt costs R25?** (R25 000)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

- The answer to the Homework Activity for Lesson 9 are provided in brackets in the activity in Lesson 9. Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson, learners divide whole numbers by 10, 100 and 1 000. The answer is a whole number, not a decimal at this grade level. Build on the knowledge and skills gained in the previous lesson where learners multiplied by 10, 100 and 1 000, as well as the fact that division is the inverse of multiplication.

Today we are learning to divide by 10, 100 and 1 000.

Activity 1: Learners work in pairs

1 Say, and write the following word problem on the board:
If 10 chocolates cost R50, how much will one chocolate cost?

First make sure that the learners understand the problem

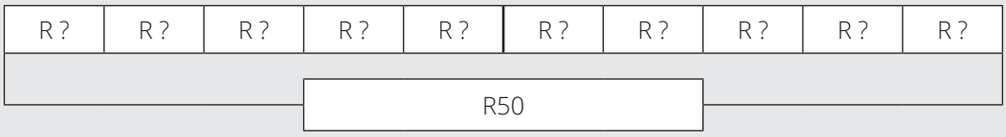
i Read the problem.
ii Let the learners read the problem until they read it fluently.
iii Underline the numbers.

If 10 chocolates cost R50, how much will one chocolate cost?

iv Underline the question with a wavy line.

If 10 chocolates cost R50, how much will one chocolate cost?

v The learners reproduce the story with manipulatives or draw diagrams in their classwork books.



vi Let a learner present his/her diagram on the board.
vii Let the learners determine the operation. (Division, R50 divided by 10)
viii Let the learners write their number sentences in their classwork books and find the answer.
ix Write the answer on the board: 50 ÷ 10 = ☐
x Say: **Remember your multiplication facts: 50 is 10 × 5 or 10 × 5.**
Say: **When we divide 50 by 10 we get 5: 10 × ☐ = 50**
Say and write: **Let's complete the number sentence: 50 ÷ 10 = 5**
Learners do the corrections in their classwork book: **50 ÷ 10 = 5 so one chocolate will cost R5.**

2 Say, and write the following word problem on the board:
If 10 shirts cost R500, how much will one shirt cost?

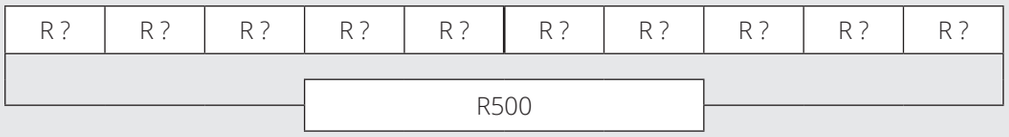
– Ask the learners to write the number sentence in their classwork books.
500 ÷10 = ☐
If many learners struggle, then take them through the steps again:
i Read the problem.
ii Let the learners read the problem until they read it fluently.
iii Underline the numbers.

If 10 shirts cost R500, how much will one shirt cost?

iv Underline the question with a wavy line.

If 10 shirts cost R500, how much will one shirt cost?

v The learners reproduce the story with manipulatives or draw diagrams in their classwork books.



- Say: **From the previous lesson we know that 500 is equal to 50 × 10 and 10 × 50.**
- Say: **When we divide 500 by 10 we get 50 (□ × 10 = 50)**
- Say and write: **Let's complete the number sentence: 500 ÷ 10 = 50. So, one shirt will cost R50.**
- Learners do the corrections in their classwork book.

Say: **Work with your partner to do Activity 2 in your LAB.**

Note: Learners will need a lot of support when finding the rules. Some support is provided by structuring the rule and getting learners to fill in missing words or numbers.

1	1 000 ÷ 10 = (100)	1 000 ÷ 100 = (10)	1 000 ÷ 1 000 = (1)
2	2 000 ÷ 10 = (200)	2 000 ÷ 100 = (20)	2 000 ÷ 1 000 = (2)
3	15 000 ÷ 10 = (1 500)	15 000 ÷ 100 = (150)	15 000 ÷ 1 000 = (15)
4	22 000 ÷ 10 = (2 200)	22 000 ÷ 100 = (220)	22 000 ÷ 1 000 = (22)
5	35 000 ÷ 10 = (3 500)	35 000 ÷ 100 = (350)	35 000 ÷ 1 000 = (35)
6	48 000 ÷ 10 = (4 800)	48 000 ÷ 100 = (480)	48 000 ÷ 1 000 = (48)
7	72 000 ÷ 10 = (7 200)	72 000 ÷ 100 = (720)	72 000 ÷ 1 000 = (72)
8	Discuss a rule we can use for dividing by 10 Start like this: To divide a number by 10, move the numbers (one) place to the right. OR (because division is an inverse operation of multiplication and we have moved digits by one place to the left in multiplication, in division we can move the digits by one place to the right)	Discuss a rule we can use for dividing by 100 Start like this: To divide a number by 100, move the numbers (two) places to the right. OR (because division is an inverse operation of multiplication and we have moved digits by two places to the left in multiplication, in division we can move the digits by two places to the right)	Discuss a rule we can use for dividing by 1 000 Start like this: To divide a number by 1 000, move the numbers (three) places to the right. OR (because division is an inverse operation of multiplication and we have moved digits by three places to the left in multiplication, in division we can move the digits by three places to the right)

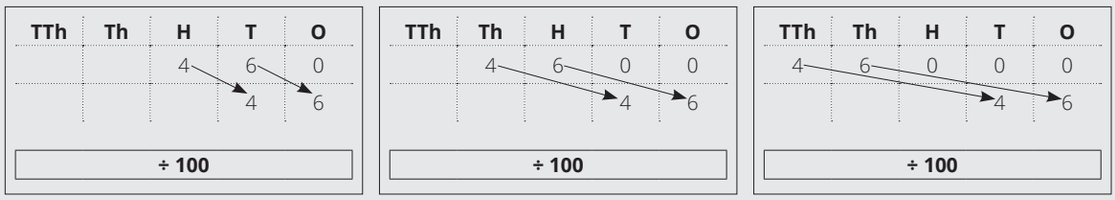
- Mark the work before moving on.

Activity 2: Learners work in pairs

1 Draw learners to the patterns which emerge in the answers to Activity 1.
Point out that:

- **When a number is divided by 10, the numbers are moved one place to the right.**
- **When a number is divided by 100, the numbers are moved two places to the right.**
- **When a number is divided by 1 000, the numbers are moved three places to the right.**

2 Support concept development by putting up the Division charts like this:



Say: **Work with your partner. Complete Activity 2 in your LAB. If necessary, go back to the rules for dividing large numbers by 10, 100 or 1 000.**

	Calculate	ANSWER
1	60 ÷ 10 =	(6)
2	350 ÷ 10 =	(35)
3	4 800 ÷ 10 =	(480)
4	4 800 ÷ 100 =	(48)
5	6 000 ÷ 100 =	(60)
6	6 000 ÷ 1 000 =	(6)
7	47 000 ÷ 10 =	(4 700)
8	47 000 ÷ 100 =	(470)
9	47 000 ÷ 1 000 =	(47)

- Correct the homework and make sure the learners are getting the work right.

5 HOMEWORK ACTIVITY (5 MINUTES)

- Say: Look at the homework activity for this lesson.
- Say: You need to divide numbers by 10, 100 and 1 000. If necessary, go back to the rules for dividing large numbers by 10, 100 or 1 000.
- Refer learners to the homework activity in their LAB. Read through the word problems. Ensure that learners understand the language and know what they are being asked.

1	If 10 bricks cost R20, how much will one brick cost?	(20 ÷ 10 = R2)
2	If 100 bricks cost R300, how much will one brick cost?	(300 ÷ 100 = R3)
3	41 000 ÷ 1 000 =	(41)
4	13 600 ÷ 100 =	(136)
5	400 000 ÷ 100 =	(4 000)
6	580 000 ÷ 10 =	(58 000)

6 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 divide large numbers that end with one, two or three zeros.

We know:

- To divide a number by 10, move the numbers one place to the right.
- To divide a number by 100, move the numbers two places to the right.
- To divide a number by 1 000, move the numbers three places to the right.

Lesson 11: Consolidation

Teacher's notes
This lesson allows for consolidation of the previous weeks' lesson content.
CAPS topics: 1.1 Whole numbers
Lesson Objective: Learners revise addition and subtraction of large numbers. They multiply and divide whole numbers ending with different numbers of zeros.
Lesson Vocabulary: add, subtract, multiply, divide,
Teacher Resources: Individual Place Value Cards, Multiply ing flash card; Dividing flash card.
Date: Week Day

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

This week, learners have learnt strategies for adding and subtracting 5-digit and 6-digit numbers based on the relative size of the numbers. They have also learnt how to multiply whole numbers by 10, 100 and 1 000 and to divide whole numbers which are multiples of 10, 100 or 1 000 by 10, 100 or 1 000.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

The addition, subtraction, multiplication and division strategies learnt this week apply in very specific circumstances only.

For example:

- The addition and subtraction strategies only apply to numbers that are comparable in terms of place value, like adding 14 000 and 9 000. Some learners might try to apply the strategies to adding numbers that are not comparable in terms of place value.
- The multiplication strategies only apply to multiplication by 10, 100 or 1 000. Some learners might try to apply the strategies to multiplying by other numbers.
- The division strategies only apply to numbers ending in 0, 00 or 000. Some learners might try to apply the strategies to the division of any large numbers.

3 HOMEWORK

- The answer to the Homework Activity for Lesson 10 are provided in brackets in the activity in Lesson 10. Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

Today we are going over what we learned this week. We are practising adding, subtracting, multiplying and dividing some large numbers.

This table comes from the beginning of the unit and gives references to page numbers of other sources, including textbooks, which you can use if you need additional activities. Select activities from the textbook/s you have for the learners to work on. Use the answers in the TG to mark the work.

	Fabulous	Oxford Headstart	Oxford Successful	Platinum	Premier	Sasol Inzalo	Solutions for All	Study & Master	Viva
LB	19-24	9-16	10-15	4-7	1-4	3-16	1-3	2-7	2-5
TG	10-13	28-35	38, 88, 141, 173	3-7, 45, 90, 121	2, 28, 92	1-18	1, 65, 203	2-6	6-7, 12

OR, learners could complete the Consolidation Activity in their LAB.

Consolidation Activity

1 Look at the example and then do the calculations.

Example: Tia has saved R2 100 and Nina has saved R 1 400.

a How much have they saved altogether?
Number sentence: 2 100 + 1 400 = ☐
21 hundred + 14 hundreds = ☐
21 + 14 = 35
So, 2 100 + 1 400 = 3 500
They have saved R3 500 altogether.

b How much more has Tia saved?
Number sentence: 2 100 – 1 400 = ☐
21 hundreds – 14 hundreds = ☐
21 – 14 = 7
So, 2 100 – 1 400 = 700

Tia has saved R700 more than Nina.

Now try these:

a 120 000 + 230 000 = (350 000)

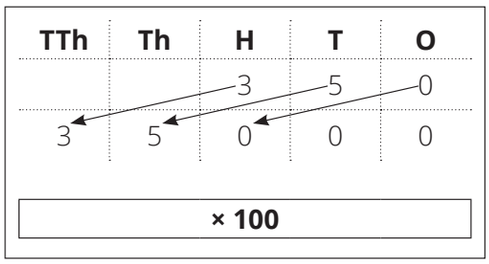
b 2352 000 – 12 000 = (213 000)

c 18 TTh + 11 TTh = (28 TTh)

d 129 HTh – 18 HTh = (111 HTh)

2 Look at the example and then do the calculations.

Example: If one dog eats 350 g of food a day, how much food will the dog eat for 10 days?



Number sentence:

$10 \times 350 = \square$

$10 \times 350 = 3\,500$

The dog will eat 3 500 g of food over 10 days.

Now try these:

a $79 \times 10 =$ (790)

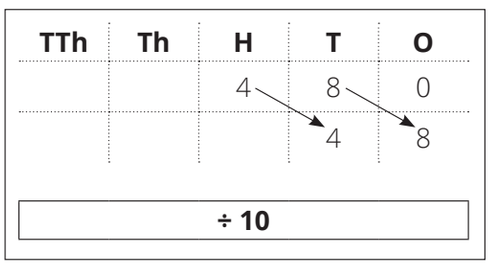
b $37 \times 100 =$ (3 700)

c $53 \times 1\,000 =$ (53 000)

d $12\,500 \times 10 =$ (125 000)

3 Look at the example and then do the calculations.

Example: If 10 workers laid 480 bricks, how many bricks did one worker lay?



Number sentence:

$480 \div 10 = \square$

Think of 480 as 48×10

$480 \div 10 = 48$

One worker laid 48 bricks.

Now try these:

a $560 \div 10 =$ (56)

b $12\,300 \div 100 =$ (123)

c $87\,000 \div 10 =$ (8 700)

d $325\,000 \div 1\,000 =$ (325)

5 REFLECTION AND SUMMARY OF LESSON

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

Today we have revised:

- One way of adding and subtracting some large numbers.
- One way of multiplying some numbers by 10, 100 and 1 000.
- One way of dividing some numbers by 10, 100 and 1 000.

Unit 2: Addition and Subtraction

INTRODUCTION

This unit focuses on the operations of addition and subtraction.

- In Grade 3 learners added and subtracted up to 999 and used the following symbols related to addition and subtraction: +, –, =, and ☐.
- In this unit, the number range for addition and subtraction is extended to 6-digit numbers.
- Learners use the column method (vertical algorithm), and some **NEW** strategies for doing addition and subtraction are introduced.
- Learners do addition with exchange (carrying) and subtraction with exchange (borrowing).

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

Framework dimension	How the dimension is developed in this unit
Conceptual understanding	Concepts are built from the simple to the more complex. Learners start with addition and move to subtraction. Learners start with 5-digit numbers and move to 6-digit numbers.
Procedural fluency	Learners follow and practice the same process (column method) when adding and subtracting 5-digit numbers as this unit follows the unit on adding and subtracting 3-digit numbers in Grade 3.
Strategic competence	Learners are exposed to a variety of strategies for adding and subtracting.
Reasoning	Learners are encouraged to think carefully and to understand what they are actually doing when they 'exchange', 'borrow' and 'carry'.

In this unit, we build a **learning centred classroom** by paying attention to:

Concept development		Done in Section 4 of every lesson
Speaking mathematics	✓	Learners are encouraged to use the words exchange, and carry when using the column method to add and subtract
Making sense of mathematics	✓	Learners use concrete and simplified pictorial representations to deepen their understanding of borrowing, carrying and exchanging
Practising procedures	✓	Learners are given multiple opportunities to practice the column method
Purposeful assessment	✓	Assessment for learning during activities. Learners mark their own work so that they can get immediate feedback
Justifying answers	✓	Learners explain: Where did the ten ones come from?
Problem solving	✓	Problem solving in context. For example: Lesson 12

Explaining concepts and procedures	✓	How to borrow from the hundreds when dealing with ones using column method to subtract
Connecting representations	✓	Linking concrete, simplified pictorial and abstract when using column method to add and subtract
Connecting topics and concepts	✓	Solving addition and subtraction problems (Content Area 1) involving units of measurement (Content Area 4)
Addressing gaps in learners' knowledge	✓	Feedback from learners responses in classwork and homework activities
Addressing learners' errors	✓	Consolidation lessons are designed to do this
Active learning	✓	Learner involvement in whole class activities, work with a partner activities and work on your own activities
Applying mathematics in context	✓	Calculating how far Siya ran altogether – Lesson 12

Mathematical vocabulary for this unit

Be sure to teach and use the following vocabulary at the appropriate place in the unit. It is a good idea to make flashcards of words and their meanings and to display these in the classroom at appropriate times.
Refer to the bilingual dictionary where necessary.

Term	Explanation / diagram
add	To join two or more numbers together to find the total amount. Example: 3 + 2 + 1 = 6
between	Occurring in the space bounded by, but not including two items. Example: the whole numbers between 10 and 15 are 11, 12, 13 and 14
digit	A symbol that is used to represent the numbers 1-9 and 0. The digits we use are 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9. Examples: 49 is made up of 2 digits, namely, 4 and 9. 205 is made up of 3 digits, namely, 2, 0 and 5.
expanded notation	Breaking up a number into its number values Example: 4 329 = 4 000 + 300 + 20 + 9
minus	Subtract or take away
plus	Add
subtract	Take away Example: 6 – 2 = 4

Further practice for learners

This table references other sources (including textbooks) if you need additional activities.

	Fabulous	Oxford Headstart	Oxford Successful	Platinum	Premier	Sasol Inzalo	Solutions for All	Study & Master	Vivlia
LB	22-41 202	19-38 228-231, 254-256	18-29 80-85 260	9-17 116, 157	7-13 180 - 181	18-43 128-135 243-249 293-296	5-17 250-253	5-37 255	8-16 102-105 175
TG	15-24 70-73 134-135 179	38-62 121-136 238-243 292-293	45-56 90-96 144 200-202	9-15 48-52 109-111 156-157	5 – 7 31-32 68 94-96	19-48 139-148 275-282 340-344	5 – 13 105-113 169-178 250-254	46-54 145-154 267-271 340-342	9-13 36-37 67-68 87-89

UNIT PLAN AND OVERVIEW FOR UNIT 2: Addition and Subtraction

LP	Lesson objective	Lesson Resources	Date completed
12	Add multiples of 1 000	Base 10 kits, Individual Place Value Cards (teacher resource)	
13	Subtract multiples of 10 000	Individual Place Value Cards (teacher resource)	
14	Use the column method to add numbers up to 5-digits	Individual Place Value Cards (teacher resource)	
15	Use any strategy to add numbers up to 5-digits	Individual Place Value Cards (teacher resource)	
16	Consolidation: Use different strategies to add numbers up to 5-digits	Base 10 kit, Individual Place Value Cards (teacher resource)	
17	Use the column method to subtract numbers up to 5-digits, including subtractions requiring borrowing once or twice	Base 10 Kit; Individual Place Value Cards (teacher resource)	
18	Use the column method to subtract numbers up to 6-digits, including subtractions requiring borrowing once or twice	Individual Place Value Cards (teacher resource)	
19	Use the column method to subtract 5- and 6-digit numbers requiring borrowing from hundreds to calculate ones	Base 10 kit	
20	Use other methods to subtract 6-digit numbers requiring borrowing from hundreds	Individual Place Value Cards	
21	Use any strategy to add and subtract up to 6-digit numbers	Individual Place Value Cards	
22	Complete consolidation activity in which they use any strategy to add and subtract 6-digit numbers	Individual Place Value Cards	
23	Do formal assessment in which they order, compare and represent numbers; and add and subtract up to 6-digit numbers	Assignment	

Assessment for learning
Use the template provided at the beginning of this guide to think deeply about at least one of the lessons in this unit.

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

Lesson 12: Adding multiples of 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: 1.1 Whole numbers: Addition and subtraction
Lesson Objective: Add multiples of 1 000 to multiples of 1 000
Lesson Vocabulary: add, multiple
Resources: Base 10 kits, Individual Place Value Cards (teacher resource)
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

		Answer
1	List the multiples of 1 000 from 0 to 4 000	0, 1 000, 2 000, 3 000, 4 000
2	List the multiples of 1 000 between 5 000 and 8 000	6 000, 7 000
3	List the multiples of 1 000 from 6 000 to 10 000	6 000, 7 000, 8 000, 9 000, 10 000
4	9 × 1 000	9 000
5	10 ×1 000	10 000
6	1 000 × 3	3 000

2 LINK TO PREVIOUS LESSON (5 MINUTES)

Link to concepts learned in previous unit by asking questions:

Write the questions on the board. The learners write the questions and answers in their classwork books.

	Questions	Answer
1	400 + 500 = ☐	(900)
2	800 + 200 = ☐	(1 000)
3	1 000 – 600 = ☐	(400)
4	1 500 – 700 = ☐	(800)
5	9 H + 7 H = ☐	(16 H)
6	11 H – 1 H = ☐	(10 H)

Do the correction with the whole class by reading out the answers.

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The previous lesson was a consolidation activity, and there was no homework activity. If necessary, use this time to review the consolidation activity.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (35 MINUTES)

In this lesson, learners add multiples of 1 000 to multiples of 1 000. Learners are expected to calculate mentally and, at this stage, should not need to use manipulatives. However, if some learners need to use concrete aids, allow them to do so. Note that we start this lesson with a word problem. It is a good idea to contextualise the mathematics where possible.

Correct the classwork after each Activity is completed.

Today we are learning to add multiples of 1 000.

Activity 1: Learners work in pairs

1 Say: **Count in 1 000s from 94 000 to 99 000.** (94 000; 95 000; 96 000; 97 000; 98 000; 99 000)

Use your Place Value flashcards in the place value table to remind learners of the place value of 1 000:

TTh	Th	H	T	0
9	4	0	0	0
9	5	0	0	0
9	6	0	0	0

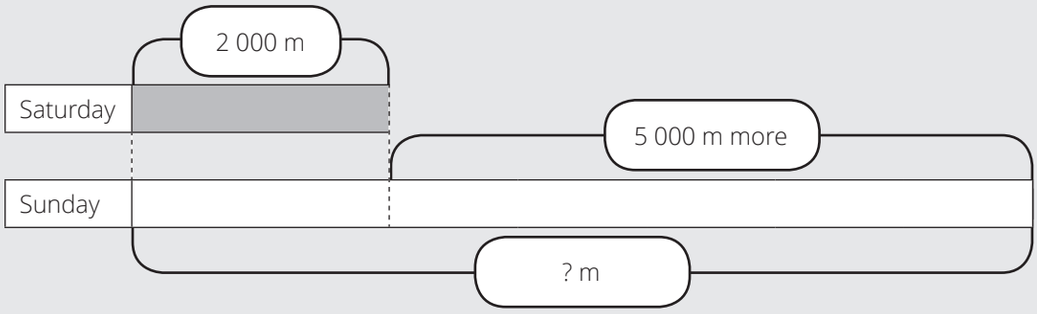
This is the Th/thousand column and you see the changes only in this column, because these numbers are multiples of 1 000.

- Say, and write the numbers: **These numbers are all multiples of one thousand. Remember that multiples of a number are formed by multiplying the number by other numbers.**

2 Say, and write the problem on the board:
Siya ran 2 000 metres on Saturday and 5 000 metres more on Sunday.
How far did Siya run on Sunday?

Understand the problem

i) Read the problem.
ii) Let learners read the problem until they read it fluently.
iii) Underline the numbers.
iv) Underline the question with a wavy line.
v) Let learners reproduce the story with a diagram.



vi Let a learner present her/his diagram on the board.
vii Let learners determine the operation. (addition, we add, ….)
viii Let learners write the number sentence and find the answer in their classwork books.
ix Write the number sentence on the board for correction: 2 000 + 5 000 = ☐
x Let some learners explain how they worked on it: We think of 2 000 as 1 000 × 2, and 5 000 as 1 000 × 5, so 2 000 + 5 000 = ☐ is (2+5) thousands. 2 + 5 = 7. This means that 2 000 + 5 000 = 7 000.
xi Complete the number sentence and write the answer on the board.
2 000 + 5 000 = 7 000. Siya ran 7 000 metres on Sunday.
Siya ran 7 000 metres on Sunday.
xii Let learners do the correction in their classwork books.

Say: **Complete Activity 1 in your LAB.**

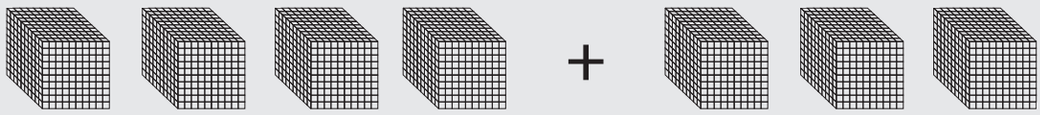
		Answers
1	3 000 + 5 000 =	(8 000)
2	16 000 + 9 000 =	(25 000)
3	42 Th + 13 Th =	(55 Th)
4	38 000 + 50 000	(89 000)
5	21 thousand plus 21 thousand	(42 thousand)
6	Given that 48 + 17= 65. What is 48 000 + 17 000 equal to?	(65 000)

– Walk around and check if learners are answering without any problems. If you find that many learners are struggling to add thousands in Activity 1, do Activity 2 first before completing Activity 1 with the whole class. Do not work with struggling learners individually.

Activity 2: Learners work on their own

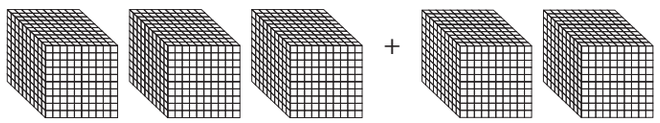
1 If you found that learners were struggling to add thousands in Activity 1, do the following additional examples. Get learners to use their Base 10 Kits.

- Place a 1 000s block on the board.
- Ask: **What number does this block represent?** (thousands)
- Place 1 000s blocks on the board like this:



- Say: **Let's read the sum out aloud. (4 thousand + 3 thousand equals)**
- Remove the + sign and move the blocks to combine them.
- Ask, and point to the 1 000s blocks: **How many thousands do we have altogether? (Four thousand plus three thousand equals seven thousand.)**

Say: **Do Activity 2 in your LAB.**

1  = (5 000)

2 5 000 + 2 000 = (7 000)

3 74 Th + 6 Th = (80 Th)

4 26 000 + 10 000 = (36 000)

5 40 000 + 50 000 = (90 000)

5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain to learners what they need to do for homework.

1	List the multiples of 1 000 between 197 000 and 202 000.	(198 000; 199 000; 200 000; 201 000 *Note that "between" means that you don't include 197 000 and 202 000.*)
2	What is 12 000 + 34 000?	(46 000)
3	Find the sum of 17 000 and 16 000.	(33 000)
4	43 000 + 145 000 =	(188 000)
5	71 Th + 19 Th =	(90 Th)

6 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

Today we have learnt to add multiples of 1 000.

Lesson 13: Subtracting multiples of 10 000

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum.		
CAPS topics: 1.1 Whole numbers: Addition and subtraction		
Lesson Objective: Subtract multiples of 10 000 from multiples of 10 000		
Lesson Vocabulary: subtract, multiple, minus		
Resources: Individual Place Value Cards (teacher resource)		
Date:	Week	Day

1 MENTAL MATHS (5 MINUTES)

		Answer
1	List the multiples of 1 000 from 43 000 to 46 000	43 000, 44 000, 45 000, 46 000
2	List the multiples of 1 000 between 30 000 and 35 000	31 000, 32 000, 33 000, 34 000
3	List the multiples of 1 000 from 6 000 to 10 000	6 000, 7 000, 8 000, 9 000, 10 000
4	50 × 1 000	50 000
5	33 ×1 000	33 000
6	1 000 × 29	29 000

2 LINK TO PREVIOUS LESSON (5 MINUTES)

Link to concepts learned in previous lessons by asking questions:

- Say: **Describe these numbers: 12 000; 143 000; 9 000.** (They are all multiples of a thousand. It would also be correct to say they are all multiples of ten or a hundred or that they are all even numbers).
- Ask, and write the numbers: **6 000 + 5 000 =** (11 000)
- Ask, and write the numbers: **25 000 + 50 000 =** (75 000)
- Ask, and write the numbers: **16 Th + 4 Th =** (20 Th)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

- The answers to the Homework Activity for Lesson 12 are provided in brackets in Lesson 12. Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson, learners subtract multiples of 10 000 from multiples of 10 000. Learners are expected to calculate mentally and, at this stage, should not need to use manipulatives. However, if some learners need to use concrete aids, allow them to do so. Note that we start

this lesson with a word problem. It is a good idea to contextualise the mathematics where possible.

Mark the learners work after they have completed each Activity. Before they move onto the next Activity, make sure they have understood everything in the previous Activity.

Today we are learning to subtract multiples of 10 000 from multiples of 10 000.

Activity 1: Learners work in pairs

1 Say: **Count in 10 000s from 60 000 to 90 000.** (60 000; 70 000; 80 000; 90 000)
Use your Place Value flashcards in the place value table to remind learners of the place value of 10 000:

TTh	Th	H	T	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0

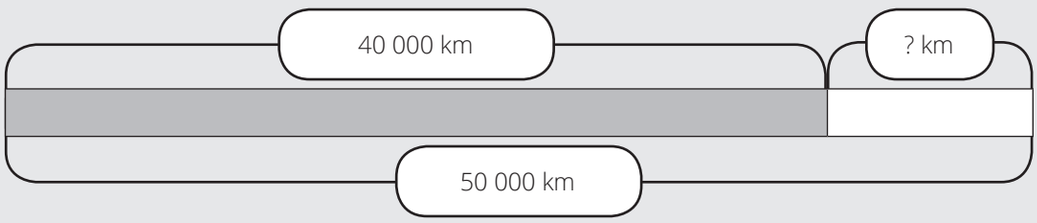
This is the TTh/ten thousand column and you see the changes only in this column, because these numbers are multiples of 10 000.

2 Say: **These numbers are all *multiples* of ten thousand. Remember that multiples of a number are formed by multiplying the number by other numbers.**
- Write: **For example: 90 000 can be formed by multiplying 10 000 by 9.**

3 Say, and write the problem on the board:
The airplane have to travel 50 000 km and it has travelled 40 000 km.
How many more kilometres must the airplane travel?

Understand the problem

i) Read the problem.
ii) Let learners read the problem until they read it fluently.
iii) Underline the numbers.
iv) Underline the question with a wavy line.
v) Let learners reproduce the story with a diagram.



vi Let a learner present her/his diagram on the board.
vii Let learners determine the operation. (addition, we add, ….)
viii Let learners write the number sentence and find the answer in their classwork books.
ix Write the number sentence on the board for correction: **50 000 – 40 000 = ☐**
x Let some learners explain how they worked on it: We think of 50 000 as 10 000 × 5; and 40 000 as 10 000 × 4., so 50 000 – 40 000 = ☐ is (5 – 4) ten thousands. 5 – 4 = 1. This means that 50 000 – 40 000 = 10 000.
xi Complete the number sentence and write the answer on the board.
50 000 – 40 000 = 10 000. The airplane must travel/fly 10 000 km more.
xii Let learners do the correction in their classwork books.

4 Say: **Complete Activity 1 in your LAB.**

		Answers
1	30 000 – 20 000 = ☐	(10 000)
2	60 000 – 30 000 = ☐	(30 000)
3	6 TTh – 1 TTh = ☐	(5 TTh)
4	70 000 – 10 000 = ☐	(60 000)
5	2 ten thousand – 2 ten thousand = ☐	(0)
6	What is 80 000 minus 60 000?	(20 000)

Activity 2: Learners work on their own

Say: **Do Activity 2 in your LAB.**

		Answers
1	90 000 – 70 000 = ☐	(20 000)
2	50 000 – 50 000 = ☐	(0)
3	8 TTh – 3 TTh = ☐	(5 TTh)
4	70 000 – 40 000 = ☐	(30 000)
5	6 ten thousands – 5 ten thousands = ☐	(1 ten thousands)
6	What is 40 000 minus 20 000?	(20 000)

5 HOMEWORK ACTIVITY (5 MINUTES)

Explain to learners what they are expected to do for homework.

If learners are still struggling to break down the big numbers into small numbers before they subtract, get them to say, or write the numbers in words.

For example: 80 000 – 10 000

- We say this as 8 ten thousands subtract 1 ten thousand.
- We can rewrite the number sentence as (8 – 1) ten thousands
- This is 7 ten thousands, which we write as 7 TTh or 70 000.

The homework activity contains steps to support learners as they work without the support of the teacher. An example has been done for the learners.

		Can be written as:	**Written as a numeral**
Example	**40 000 – 30 000 =**	**4 TTh – 3 TTh = 1 TTh**	**10 000**
1	60 000 – 40 000 =	(6 TTh – 4 TTh = 2 TTh)	(20 000)
2	70 000 – 70 000 =	(7 TTh – 7 TTh = 0 TTh)	(0)
3	90 000 – 50 000 =	(9 TTh – 5 TTh = 4 TTh)	(40 000)
4	80 000 – 10 000 =	(8 TTh – 1 TTh = 7 TTh)	(70 000)
5	50 000 – 30 000 =	(5 TTh – 3 TTh = 2 TTh)	(20 000)

6 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

Today we have learnt to subtract multiples of 10 000.

Lesson 14: Use the column method to add numbers up to 5 digits

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum.
CAPS topics: 1.1 Whole numbers: Addition and subtraction
Lesson Objective: Use the column method to add numbers up to 5-digits
Lesson Vocabulary: column, column method, carry, exchange, solve, digit
Resources: Individual Place Value Cards (teacher resource)
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

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

2 LINK TO PREVIOUS LESSON (5 MINUTES)

Link to concepts learned in previous lessons by asking questions:

- Ask, and write: **9 TTh + 4 TTh =** (13 TTh)
- Ask, and write: **10 TTh – 0 TTh =** (10 TTh)
- Ask, and write the numbers: **20 000 – 18 000 =** (2 000)
- Ask, and write the numbers: **17 000 – 10 000 =** (7 000)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

- The answers to the Homework Activity for Lesson 14 are provided in brackets in Lesson 14. Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (35 MINUTES)

In this lesson learners use the column method (Vertical algorithm) to add numbers up to 5-digits. In Grade 3, learners used the column method to add 3-digit numbers. Adding 4-digit and 5-digit numbers using the column method is a continuation of the Grade 3 work, building on knowledge and skills from Grade 3. One of the challenges learners face when using the column method is to keep the digits in the correct place value/vertical column. Learners used to draw a place value table when they calculated with the column

method. Learners are supposed to continue drawing place value tables to get the digits in correct place value.

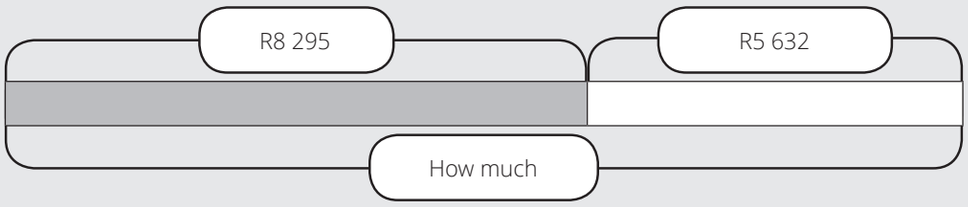
Today we are learning to add numbers up to 5-digits using the column method.

Activity 1: Whole class activity

1 Say, and write the problem on the board:
The farmer had R8 295 in her bank account.
She deposited R5 632 today.
How much money does she have in her bank account?

Understand the problem

i Read the problem.
ii Let learners read the problem until they read it fluently.
iii Underline the numbers.
iv Underline the question with a wavy line.
v Let learners reproduce the story with a diagram.



vi Let a learner present her/his diagram on the board.
vii Let learners determine the operation. (addition, we add, ….)
viii Let learners write the number sentence in their classwork books.
ix Write the number sentence on the board for correction: 8 295 + 5 632 = ☐

2 Say: **Remember that you added using the column method to solve problems in Grade 3. Today we are going to use the column method again.**

- Draw the place value table on the board. Write **O** in the ones place, **T** in the tens place, **H** in the hundreds place and **Th** in the thousands place. **TTh** will be written later.
- Discuss each step. Ensure that you use the correct language – ones, tens, hundreds, thousands, ten thousand, add, carry, exchange
- Say: **The first step is to line up the numbers vertically in ones, tens, hundreds and thousands.**
- Ask: **which place value we start calculation?** (ones place, **5 + 2 = 7**).
- Say: **Write the 7 in the ones place, under the line.**
- Ask: **What we do in the tens place? Add the digits in the tens place: 9 + 3 = 12.**

		Th	H	T	O
			1		
		8	2	9	5
+		5	6	3	2
	1	3	9	2	7

- Say: **Exchange 10 tens for 1 hundred and carry the 1 hundred to the hundred's place. Write the 2 in the tens place, under the line.**
- Say: **Add the digits in the hundreds place:** (1 (carried from hundreds column) + 2 + 6 = 9).
- **Write the 9 in the hundreds place, under the line.**
- Say: **Add the digits in the thousands place.**
  (8 + 5 = 13. Exchange 10 thousands for 1 ten thousand and carry the 1 ten thousand to the ten thousands place).
- **Write TTh and the 1 in the ten thousands place, under the line.**

We can write the 1 (carried from the thousands column) in the ten thousand column. We add the digits; 1 + 0 + 0 = 1 and then write 1 in the ten thousands place, under the line.

	TTh	Th	H	T	O
	1		1		
		8	2	9	5
+		5	6	3	2
	1	3	9	2	7

3 Complete the number sentence and write the answer on the boared:
8 295 + 5 632 = 13 927. So she has R13 927 in her bank account.

4 Let learners do the correction in their classwork books.

Activity 2: Learners work in pairs.

Say: **Do Activity 2 in your LAB.** Walk around the class as the learners work and make sure they are adding in columns correctly.

Calculate

1

	TTh	Th	H	T	O
	1	9	2	3	5
+	3	0	6	2	4

ANSWERS

19 235 + 30 624 = (49 859)

2

	TTh	Th	H	T	O
	4	0	6	3	7
+	5	8	5	1	4

40 637 + 58 514 = (99 151)

3

	TTh	Th	H	T	O
		3	2	7	6
+	4	8	5	3	5

3 276 + 48 535 = (51 811)

4

	TTh	Th	H	T	O
	3	0	7	5	4
+	1	8	4	4	8

30 754 + 18 448 = (49 202)

5

	TTh	Th	H	T	O
	1	3	6	7	9
+			3	4	8

13 679 + 348 = (14 027)

Activity 3: Learners work on their own.

Say: **Do Activity 3 in your LAB.** Walk around the class as the learners work and make sure they are adding in columns correctly.

- Say: **You need to fill in the numbers in the correct columns for questions 1, 2 and 3 and then find the answer.**
- Say: **You need to draw your own columns and fill in the numbers for questions 4 and 5 and then find the answer.**

Calculate

ANSWERS

1 14 392 + 28 419 = ☐

	TTh	Th	H	T	O
+					

14 392 + 28 419 = (42 811)

2 Calculate: 70 345 + 8 219 = ☐

	TTh	Th	H	T	O
+					

(70 345 + 8 219 = 78 564)

3 Solve: 675 + 80 669 = ☐

	TTh	Th	H	T	O
+					

(675 + 80 669 = 81 344)

4 Solve: 7 457 + 4 509 = ☐

(7 457 + 4 509 = 11 966)

- Say: **There are no ten thousands in the numbers we added.**
- Ask: **Where did the 1 ten thousand come from?** (it was carried from the thousands column when 11 Th was exchanged for 1 TTh and 1 Th)

5 Solve: 60 715 + 9 300 = ☐

(60 715 + 9 300 = 70 015)

5 HOMEWORK ACTIVITY (5 MINUTES)

- Say: **Look at the homework activity for today.**
- Say: **Sometimes you will need to exchange and carry.**
- Say: **For question 3 you need to draw your own columns. Work carefully to keep the digits in the correct columns.**

1	Calculate 23 209 + 41 678 = ☐ TTh Th H T O +	(23 209 + 41 678 = 64 887)
2	Calculate 3 456 + 980 = ☐ TTh Th H T O +	(3 456 + 980 = 4 436)
3	Solve 80 319 + 8 245 = ☐	(80 319 + 8 245 = 88 564)

6 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we have learnt to add big numbers using the column method.

We must remember:

- to **work carefully to keep the digits in the correct columns.**
- that we need to exchange and carry if the answer in any column is bigger than 9.

Lesson 15: Using any strategy to add numbers up to 5 digits

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum.		
CAPS topics: 1.1 Whole numbers: Addition and subtraction		
Lesson Objective: Use any strategies to add numbers up to 5-digits		
Lesson Vocabulary: add, number line, expanded notation, place value		
Resources: Individual Place Value Cards (teacher resource)		
Date:	Week	Day

1 MENTAL MATHS (5 MINUTES)

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

2 LINK TO PREVIOUS LESSON (5 MINUTES)

Link to concepts learned in previous lessons by asking questions:

- Calculate 35 413 + 14 672. Use the column method. (50 085)
- Calculate 3 678 + 92 608. Use the column method. (96 286)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

- The answers to the Homework Activity for Lesson 14 are provided in brackets in Lesson 14. Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (35 MINUTES)

In this lesson, learners use two strategies (methods) other than the column method to add numbers up to 5-digits. The two strategies are:

- Adding by first using expanded notation and and then using the column method
- Adding by adding on place value parts

Say: **Today we are learning some other ways of adding big numbers.**

Activity 1: Whole class activity

1 Ask: **What kind of strategies do you know for addition except column method?** (break down and building up, counting, doubling and halving, number lines, etc.)

2 Say: **We can write the numbers in expanded notation and then add.**
- Say and write: **34 279 + 52 607 = □**
- Ask: **Who would like to write the number 34 271 in expanded notation on the board?**
  (34 271 = 30 000 + 4 000 + 200 + 70 + 9)
- Ask: **Who would like to write the number 52 607 in expanded notation on the board?**
  (52 607 = 50 000 + 2 000 + 600 + O T + 7)
- Let learners explain each step:

Add the ten thousands	30 000 + 50 000	=	80 000
Add the thousands	4 000 + 2 000	=	6 000
Add the hundreds	200 + 600	=	800
Add the tens	70 + 0	=	70
Add the ones	9 + 7	=	16
Add them altogether			86 886

Activity 2: Learners work in pairs

Say: **Do Activity 2 in your LAB.**

- The answers are given in brackets in the activity.
- Walk around the class and assist the learners who are having problems. Mark the work before moving to the next activity.

1 Calculate 35 271 + 42 710 by writing in expanded notation and then adding.

Write 35 271 in expanded notation	(30 000 + 5 000 + 200 + 70 + 1)		
Write 42 710 in expanded notation	(40 000 + 2 000 + 700 + 10 + 0)		
Add the ten thousands	(30 000 + 40 000	=	70 000)
Add the thousands	(5 000 + 2 000	=	7 000)
Add the hundreds	(200 + 700	=	900)
Add the tens	(70 + 10	=	80)
Add the ones	(1 + 0	=	1)
Add them all together			(77 981)

2 Calculate 94 609 + 4 391 by writing in expanded notation and then adding.

Write 94 609 in expanded notation	(90 000 + 4 000 + 600 + 0T + 9)		
Write 4 390 in expanded notation	(4 000 + 300 + 90 + 1)		
Add the ten thousands	(90 000 + 0	=	90 000)
Add the thousands	(4 000 + 4 000	=	8 000)
Add the hundreds	(600 + 300	=	900)
Add the tens	(0 + 90	=	90)
Add the ones	(9 + 1	=	10)
Add them all together			(99 000)

Activity 3: Whole class activity and Learners work on their own

1 Say: **We can also add by adding on place value parts to the 1st number.**

2 Say, write and point to the numbers as you speak:
To calculate 14 574 + 23 425, we can write the number that is to be added (the second number) in *expanded notation* and then add each place value part to the first number.

- Ask: **Who would like to write the number 23 465 in expanded notation on the board?**
  (23 425 = 20 000 + 3 000 + 400 + 20 + 5)
- Say and write: **14 574 + 23 425 = 14 574 + 20 000 + 3 000 + 400 + 20 + 5**
- Say and write: **The answer can be calculated like this:**

→ **14 574 + 20 000 = 34 574**

→ **34 574 + 3 000 = 37 574**

→ **37 574 + 400 = 37 924**

→ **37 974 + 20 = 37 994**

→ **37 994 + 5 = 37 999**

Some learners may notice that;

- both methods are the same as the column method, because we always add the digits in the same place value, and
- the example of second method does not have any exchange.
  If they say so, show them an example with exchange/carrying (e.g. 16 989 + 24 715 = ☐).
  Let learners experience that it is not simple as addition without exchange.

Say: **Do Activity 3 in your LAB.**

- The answers are given in brackets in the activity.
- Walk around the class and assist the learners who are having problems.
- Mark the work. Point out to the learners that they have used three different methods of adding numbers, and ask them which they prefer. (The column method is quicker but the other two methods don't require exchanging / borrowing.)

1. Calculate 53 219 + 24 670 by writing the second number in expanded notation and then adding each place value part to the first number.

Calculate 53 219 + 24 670

Step 1: Write the second number in expanded notation.	(20 000 + 4 000 + 600 + 70 + 0)
Step 2: Add the TTh to the first number.	(53 219 + 20 000 = 73 219)
Step 3: Add the Th to Step 2	(73 219 + 4 000 = 77 219)
Step 4: Add the H to Step 3	(77 219 + 600 = 77 819)
Step 5: Add the T to Step 4	(77 819 + 70 = 77 889)
Step 6: Add the O to Step 5	(77 889 + 0 = 77 889)
	This is the final answer

2. Calculate 76 408 + 23 591 by writing the second number in expanded notation and then adding each place value part to the first number.

Calculate 76 408 + 23 591

Step 1: Write the second number in expanded notation.	(20 000 + 3 000 + 500 + 90 + 1)
Step 2: Add the TTh to the first number.	(76 408 + 20 000 = 96 408)
Step 3: Add the Th to Step 2	(96 408 + 3 000 = 99 408)
Step 4: Add the H to Step 3	(99 408 + 500 = 99 908)
Step 5: Add the T to Step 4	(99 908 + 90 = 99 998)
Step 6: Add the O to Step 5	(99 998 + 1 = 99 999)
	This is the final answer

5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain to the learners that they can use the method they prefer to find these answers.

		Answers
1	Calculate 61 218 + 38 231 = ☐	(99 449)
2	Find the sum of 22 311 + 13 176	(35 487)
3	Calculate 13 767 + 31 201 = ☐	(44 968)

6 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 different ways of adding. We know that we can use expanded notation to help us to add numbers.

Lesson 16: Consolidation

Teacher's notes
This lesson allows for consolidation of the previous weeks' lesson content.
CAPS topics: 1.1 Whole numbers: Addition and subtraction
Lesson Objective: Complete consolidation lesson in which learners use any strategy to add numbers up to 5-digits
Lesson Vocabulary: add, expanded notation, sum, exchange, carry, total
Resources: Base 10 kit, Place Value flashcards (teacher resource)
Date: Week Day

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

The thread running through this unit is first addition and then subtraction. Learners have been exposed to a range of different strategies for adding big numbers. Note that, while the column method can be successfully applied to all addition situations, some of the other strategies are better suited to some addition situations than to others.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

When adding big numbers, some learners do not always realise the importance of place value of digits in the number. Errors with place value occur particularly when adding numbers that have different numbers of digits (for example, when adding a 4-digit number and a 5-digit number), or when either or both of the numbers contain a zero.

3 CORRECT HOMEWORK (5 MINUTES)

- The answers to the Homework Activity for Lesson 15 are provided in brackets in Lesson 15. Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

4 CLASSWORK/HOMEWORK (50 MINUTES)

- Say: Today we are going over what we learned this week. We will practise adding large numbers.
- Either use the Additional Activities from textbooks that you have, or use the Consolidation Activity given.

Activities in the textbooks that can be used for consolidation

Select activities from the textbook/s you have. Use the answers given in the LB to mark the work.

	Fabulous	Oxford Headstart	Oxford Successful	Platinum	Premier	Sasol Inzalo	Solutions for All	Study & Master	Vivlia
LB	22-41 202	19-38 228-231, 254-256	18-29 80-85 260	9-17 116, 157	7-13 180 - 181	18-43 128-135 243-249 293-296	5-17 250-253	5-37 255	8-16 102-105 175
TG	15-24 70-73 134-135 179	38-62 121-136 238-243 292-293	45-56 90-96 144 200-202	9-15 48-52 109-111 156-157	5 – 7 31-32 68 94-96	19-48 139-148 275-282 340-344	5 – 13 105-113 169-178 250-254	46-54 145-154 267-271 340-342	9-13 36-37 67-68 87-89

OR, learners could complete the Consolidation Activity in their LAB.

Consolidation Activity

1 There are two used cars for sale. The red car costs R24 000 and the blue car costs R18 000.
Hint: Think of 24 000 as 24 × 1 000 and think of 18 000 as 18 × 1 000

a How much do the two cars cost in total? (R42 000)

b How much less does the blue car cost? (R6 000)

2 Calculate

a 50 000 + 20 000 = (70 000)

b 90 000 – 30 000 = (60 000)

c 8 TTh + 5 TTh = (13 TTh)

d 46 000 – 23 000 = (23 000)

3 **a** Find answers to

45 + 28 = (73)

45 – 28 = (17)

b Use your calculations in a) to help you find answers to these calculations:

45 000 + 28 000 = (73 000)

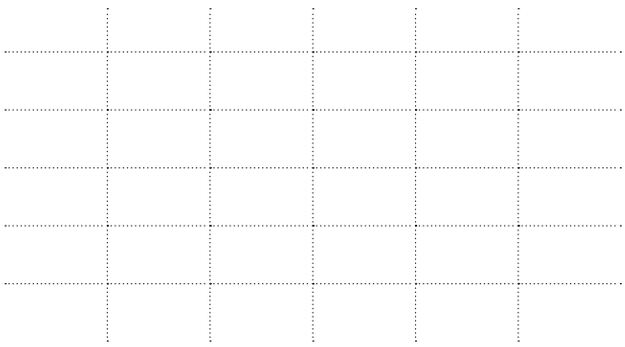
4 500 + 2 800 = (7 300)

45 TTh + 28 TTh = (73 TTh)

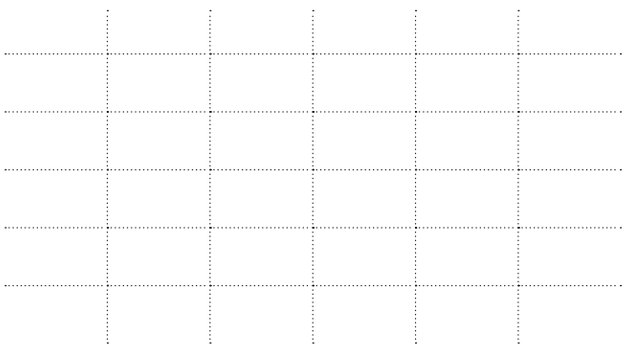
45 TTh – 28 TTh = (17 TTh)

4 Calculate. Use the column method

a 23 671 + 28 209 (51 880)



b 31 242 + 17 560 (48 802)



5 Calculate. Use expanded notation.

a 41 878 + 23 241 (65 119)

b 16 004 + 28 972 (44 976)

6 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we have revised different ways of adding large numbers.

Lesson 17: Using the column method to subtract 5-digit numbers

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum.
CAPS topics: 1.1 Whole numbers: Addition and subtraction
Lesson Objective: Use the column method to subtract numbers up to 5-digits, including subtractions requiring borrowing once or twice.
Lesson Vocabulary: subtract, borrow, difference
Resources: Base 10 Kit; Individual Place Value Cards (teacher resource)
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

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

2 LINK TO PREVIOUS LESSON (5 MINUTES)

Link to concepts learned in previous lessons by asking these questions:

Learners write them in their classwork books.

- Add 49 TTh to 50 TTh (99 TTh)
- Write the number 34 609 in expanded notation. (30 000 + 4 000 + 600 + 0T + 9)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The previous lesson was a consolidation lesson. The homework was to complete the consolidation activity – answers provided in Lesson 16

4 LESSON CONTENT – CONCEPT DEVELOPMENT (35 MINUTES)

Learners use the column method to subtract numbers up to 5-digits. The subtraction should involve borrowing once or twice. It is important for learners to understand the concept of 'borrowing' which is actually decomposing a number from a higher place value column. Many learners struggle with this concept, so it is important to use concrete and semi-concrete representations to show them when and how to 'borrow'.

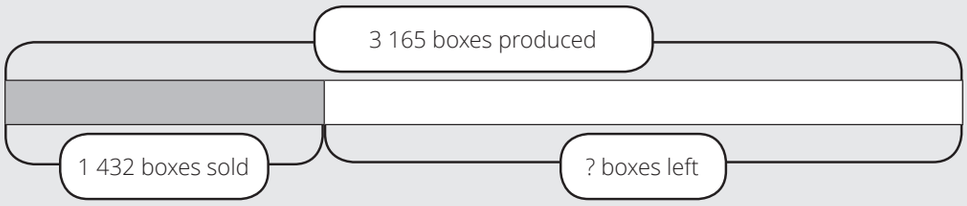
Today we are learning to use the column method to subtract big numbers.

Activity 1: Whole class activity

1 Write the problem on the board:
The farmer produced 3 165 boxes of tomatoes. 1 432 of them were sold in the market.
How many boxes of tomatoes are left?

Understand the problem

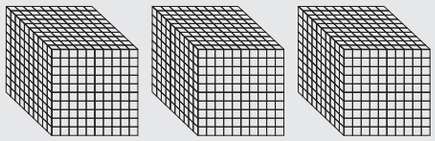
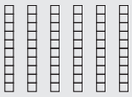
i Read the problem.
ii Let learners read the problem until they read it fluently.
iii Underline the numbers.
iv Underline the question with a wavy line.
v Let learners reproduce the story with a diagram.



vi Let a learner present her/his diagram on the board.
vii Let learners determine the operation. (subtraction, we subtract, ….)
viii Let learners write the number sentence in their classwork books.
ix Write the number sentence on the board for correction: 3 165 – 1 432 = □

2 Say and point: **We are going to subtract one thousand four hundred and thirty-two from three thousand one hundred and sixty-five.**

- Let learners read the number sentence.
- Say: **Use your Base 10 kit. Lay out the number 3 165.**
- Check that learners have laid out the ones, tens, hundreds and thousands like this: Note that learners know they do not need to lay out 1 432 because they have to take away 1 432 from 3 165.

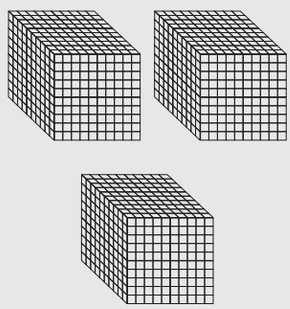
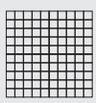
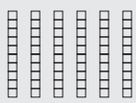
Thousands (Th)	Hundreds (H)	Tens (T)	Ones (O)
			□ □ □ □ □

3 Write the vertical subtraction on the board like this:
(Learners also write the vertical subtraction in their classwork books and follow what the teacher does.)

- As you do each step with the manipulatives, do the corresponding step on the vertical subtraction.

	Th	H	T	O
	3	1	6	5
–	1	4	3	2

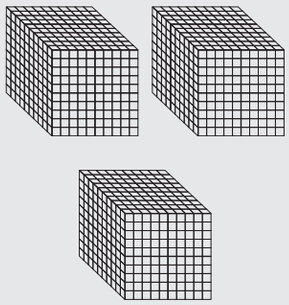
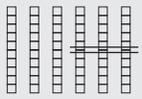
4 Say: **We start with the ones. Subtract 2 ones from 5 ones:**

Thousands (Th)	Hundreds (H)	Tens (T)	Ones (O)
			
			When we subtract 2 ones from 5 ones we are left with 3 ones

- Ask: **How many ones are left?** (3)
- Now do the same in the One's column on the vertical subtraction:

	Th	H	T	O
	3	1	6	5
–	1	4	3	2
				3

5 Say: **Subtract the tens. Subtract 3 tens from 6 tens:**

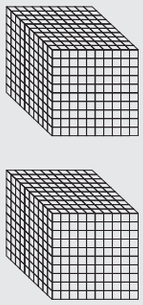
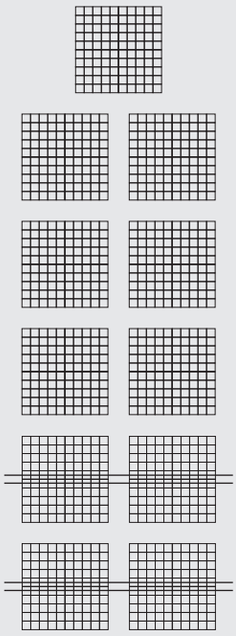
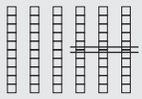
Thousands (Th)	Hundreds (H)	Tens (T)	Ones (O)
			
		When we subtract 3 tens from 6 tens we are left with 3 tens	When we subtract 2 ones from 5 ones we are left with 3 ones

- Ask: **How many tens are left?** (3)

- Now do the same in the Ten's column on the vertical subtraction:

	Th	H	T	O
	3	1	6	5
–	1	4	3	2
			3	3

6 Say: **Subtract the hundreds. We cannot take 4 hundreds from 1 hundred. We know that 1 thousand is 10 hundreds. We exchange 1 thousand for 10 hundreds:**

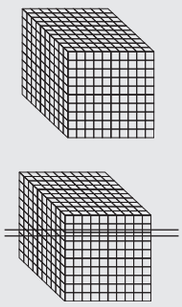
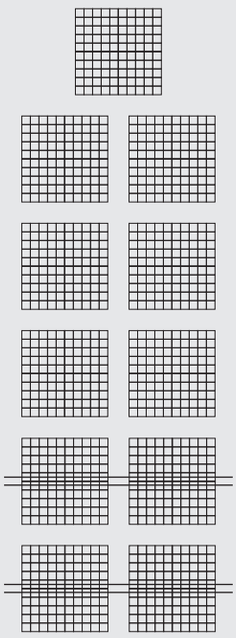
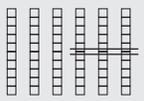
Thousands (Th)	Hundreds (H)	Tens (T)	Ones (O)
			
	After we have exchanged 1 thousand for 10 hundreds. We say we have borrowed 1 thousand. Now we have 11 hundreds. When we subtract 4 hundreds from 11 hundreds, we have 7 hundreds left.	When we subtract 3 tens from 6 tens we are left with 3 tens	When we subtract 2 ones from 5 ones we are left with 3 ones

- Ask: **How many hundreds are left?** (7)

- Now do the same in the Hundreds column on the vertical subtraction:

	Th	H	T	O
	2	1		
	~~3~~ 2	1	6	5
–	1	4	3	2
		7	3	3

7 Say: **Subtract the thousands. Subtract 1 thousand from two thousands.**

Thousands (Th)	Hundreds (H)	Tens (T)	Ones (O)
			
When we subtract 1 thousand from 2 thousands we have 1 thousand left.	After we have exchanged 1 thousand for 10 hundreds. We say we have borrowed 1 thousand. Now we have 11 hundreds. When we subtract 4 hundreds from 11 hundreds, we have 7 hundreds left.	When we subtract 3 tens from 6 tens we are left with 3 tens	When we subtract 2 ones from 5 ones we are left with 3 ones
1 thousand	7 hundreds	3 tens	3 ones

- Now do the same in the Thousands column on the vertical subtraction:

- Say and write: 3 165 – 1 432 = 1 733.

	Th	H	T	O
	2	1		
	~~3~~	1	6	5
–	1	4	3	2
	1	7	3	3

- Let learners complete the number sentence and write the answer in their classwork book.
- Write the complete number sentence with answer on the board for correction; 3 165 – 1 432 = 1 733. We have 1 733 boxes are left.

Activity 2: Learners work in pairs

Say: **Do Activity 2 in your LAB. You may use your Base 10 kit if you want to.**

– Calculations 3 and 4 require learners to borrow more than once. Some learners might need additional support with this. Mark the work once the learners have finished the Activity and discuss any problems they may have had.

Calculate. You may use your Base 10 kit if you want to.

1 4 362 – 3 272

	Th	H	T	O
	4	3	6	2
–	3	2	7	2

Answer: (1 090)

2 76 287 – 32 196

	TTh	Th	H	T	O
	7	6	2	8	7
–	3	2	1	9	6

Answer: (44 091)

3 81 406 – 23 394

	TTh	Th	H	T	O
	8	1	4	0	6
–	2	3	3	9	4

Answer: (58 012)

4 76 287 – 32 196

	TTh	Th	H	T	O
	5	6	3	4	1
–	2	7	4	2	3

Answer: (28 922)

Activity 3: Learners work on their own

Say: **Do Activity 3 in your LAB. You may use your Base 10 kit if you want to.**

– The calculations require learners to borrow three times. Some learners might need additional support with this. Mark the work once the learners have finished the Activity and discuss any problems they may have had.

Calculate. You may use your Base 10 kit if you want to.

1 14 465 – 12 574 = ☐

	TTh	Th	H	T	O
	1	4	4	6	5
–	1	2	5	7	4

Answer: (1 891)

2 93 269 – 48 354 = ☐

	TTh	Th	H	T	O
	9	3	2	6	9
–	4	8	3	5	4

Answer: (44 915)

3 46 361– 11 549 = ☐

	TTh	Th	H	T	O
	4	6	3	6	1
–	1	1	5	4	9

Answer: (34 812)

4 56 326 – 55 417 = ☐

	TTh	Th	H	T	O
	5	6	3	2	6
–	5	5	4	1	7

Answer: (909)

5 HOMEWORK ACTIVITY (5 MINUTES)

Explain what learners are required to do for homework. Remind learners that they may use their Base 10 kits if they want to.

Calculate. You may use your base 10 kit if you want to.

1.	39 765 – 38 526 =	(1 239)
2.	16 595 – 15 674 =	(929)
3.	36 216 – 25 305 =	(10 911)

6 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we have learnt to subtract 5-digit numbers using the column method. We also learnt how to 'borrow' from a higher place value where necessary.

Lesson 18: Using the column method to subtract 6-digit numbers

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum.
CAPS topics: 1.1 Whole numbers: Addition and subtraction
Lesson Objective: Use the column method to subtract numbers up to 6-digits, including subtractions requiring borrowing once or twice.
Lesson Vocabulary: subtract, borrow, column
Resources: Individual Place Value Cards (teacher resource)
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

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

2 LINK TO PREVIOUS LESSON (5 MINUTES)

Link to concepts learned in previous lessons by asking these questions:

Ask: **Is it possible to subtract 4 ones from 2 ones?** (No)

Ask: **What should we do when we find we can't subtract the numbers in a place value column?** (We should see if we can 'borrow', from a higher place value, and then exchange to get the place value we are working with).

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

- The answers to the Homework Activity for Lesson 17 are provided in brackets in Lesson 17. Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (35 MINUTES)

This lesson provides an opportunity for learners to practice subtraction using the column method. The number range is extended to subtracting 6-digit numbers. Learners should not find the move from 5-digit numbers to 6-digit numbers difficult as the process of subtraction using the column method is the same. Learners have an opportunity to

improve their procedural fluency regarding the use of the column method in subtraction calculations that involve borrowing.

Today we are learning to use the column method to subtract 6-digit numbers.

Activity 1: Whole class activity

1 Say: **In the last lesson you used the column method to subtract 5-digit numbers. Today we are going to use the column method to subtract 6-digit numbers. We follow the same steps.**

2 Write the number sentence: 826 437 – 623 519 = ☐ and read it with learners several times unitil learners read 6-digit numbers correctly and fluently.

3 On the board do the calculation step-by-step, with learners. Use language carefully. Let learners come to the board and explain how to work in each place value.Assist them to show how the digits in each place value are subtracted and how we 'borrow' when necessary.

Subtract the ones: We cannot subtract 9 from 7, so we borrow 1 ten from the Tens column. The 3 tens changes to 2 tens. The 7 ones changes to 17 ones because 1 ten is 10 ones. 17 ones subtract 9 ones is 8 ones.

	HTh	TTh	Th	H	T	O
	8	2	6	4	$^{2}\not{3}$	$^{1}7$
–	6	2	3	5	1	9
						8

Subtract the tens: 2 tens subtract 1 ten is 1 ten.

	HTh	TTh	Th	H	T	O
	8	2	6	4	$^{2}\not{3}$	$^{1}7$
–	6	2	3	5	1	9
					1	8

Subtract the hundreds: We cannot subtract 5 hundreds from 4 hundreds, so we borrow 1 thousand from the thousands column. Remember that 1 thousand is ten hundreds. The 6 thousands changes to 5 thousands, and the 4 hundreds changes to fourteen hundreds.

14 hundreds subtract 5 hundreds is 9 hundreds.

	HTh	TTh	Th	H	T	O
	8	2	$^{5}\not{6}$	$^{1}4$	$^{2}\not{3}$	$^{1}7$
–	6	2	3	5	1	9
				9	1	8

Subtract the thousands:
5 thousands subtract 3 thousands is 2 thousands.

	HTh	TTh	Th	H	T	O
	8	2	$^{5}\not{6}$	$^{1}4$	$^{2}\not{3}$	$^{1}7$
–	6	2	3	5	1	9
			2	9	1	8

Subtract the ten thousands:
2 ten thousands subtract 2 ten thousands is 0 ten thousands.

	HTh	TTh	Th	H	T	O
	8	2	$^{5}\not{6}$	$^{1}4$	$^{2}\not{3}$	$^{1}7$
–	6	2	3	5	1	9
		0	2	9	1	8

Subtract the hundred thousands: 8 hundred thousands subtract 6 hundred thousands is 2 hundred thousand.

	HTh	TTh	Th	H	T	O
	8	2	$^{5}\not{6}$	$^{1}4$	$^{2}\not{3}$	$^{1}7$
–	6	2	3	5	1	9
	2	0	2	9	1	8

So, 826 437 – 623 519 = 202 918

Activity 2: Learners work in pairs

- This activity consists of six questions with a mix of 4-digit, 5-digit and 6-digit numbers. Learners must be careful to write digits in the correct place values. The questions have been graded from least complex to most complex. No borrowing is required in the first two questions, learners need to borrow once in questions 3 and 4, and learners need to borrow twice in questions 5 and 6.
- Watch closely as learners sometimes make mistakes when there are different numbers of digits in the question or in the answer. . Mark the work once the learners have finished the Activity and discuss any problems they may have had.

Say: Do Activity 2 in your LAB.

Calculate.

1 432 987 –22 876

	HTh	TTh	Th	H	T	O
–						

Answer: (211 111)

2 619 387 – 616 345

	HTh	TTh	Th	H	T	O
–						

Answer: (3 042)

3 294 638 – 132 342

	HTh	TTh	Th	H	T	O
–						

Answer: (162 296)

4 983 647 – 74 203

	HTh	TTh	Th	H	T	O
–						

Answer: (909 444)

5 217 524 – 206 953

	HTh	TTh	Th	H	T	O
–						

Answer: (10 571)

6 135 598 – 46 243

	HTh	TTh	Th	H	T	O
–						

Answer: (89 355)

Activity 3: Learners work on their own

- Mark the work once the learners have finished the Activity and discuss any problems they may have had.

Say: **Do Activity 3 in your LAB**

Calculate.

1 365 497 – 135 321

	HTh	TTh	Th	H	T	O
–						

Answer: (230 176)

2 942 634 – 42 215

	HTh	TTh	Th	H	T	O
–						

Answer: (900 419)

3 793 416 – 126 245

	HTh	TTh	Th	H	T	O
–						

Answer: (667 171)

4 573 294 – 465 163

	HTh	TTh	Th	H	T	O
–						

Answer: (108 131)

5 69 234 – 57 138

	HTh	TTh	Th	H	T	O
–						

Answer: (12 096)

6 295 913 – 6 806

	HTh	TTh	Th	H	T	O
–						

Answer: (289 107)

6 HOMEWORK ACTIVITY (5 MINUTES)

Show learners what they need to do for homework.

If you find that many learners have made errors, choose one or two of the questions to do as fully worked examples on the board.

1.	297 634 – 161 243	(136 391)
2.	124 643 – 121 935	(2 708)
3.	621 326 – 401 138	(220 188)

6 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 column method to subtract numbers up to 6-digits, with and without borrowing,

Lesson 19: Subtracting 5 and 6 digit numbers

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum.		
CAPS topics: 1.1 Whole numbers: Addition and subtraction		
Lesson Objective: Use the column method to subtract 5- and 6-digit numbers requiring borrowing from hundreds to calculate ones.		
Lesson Vocabulary: subtract, borrow, column, exchange, digit		
Resources: Base 10 kit		
Date:	Week	Day

1 MENTAL MATHS (5 MINUTES)

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

2 LINK TO PREVIOUS LESSON (5 MINUTES)

Link to concepts learned in previous lessons by asking these questions:

Say: **We sometimes need to borrow more than once when doing a calculation.**

- Ask: **When we borrow one ten, what do we exchange it for?** (Ten ones)
  Ask: **Why can we exchange one ten for ten ones?** (Because one ten is the same as ten ones, one ten is made of 10 ones.) If necessary, use the Base 10 kit to explain the answer.
- Ask: **When we borrow one thousand, what can we exchange it for?** (Ten hundreds)
  Ask: **Why can we exchange one thousand for ten hundreds?** (Because one thousand is the same as ten hundreds). If necessary, use the Base 10 kit to explain the answer.

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

- The answers to the Homework Activity for Lesson 18 are provided in brackets in the Lesson 18. Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (35 MINUTES)

In this lesson we borrow from hundreds to subtract ones. This is a new concept.

The rest of the calculation follows the same procedure as in previous lessons.

Activity 1: Whole class activity

1 Write the problem on the board:
There are 4 500 people in the soccer stadium.
1 327 of them are children and the rest are adults.
How many adults are there?

Understand the problem

i Read the problem.
ii Let learners read the problem until they read it fluently.
iii Underline the numbers.
iv Underline the question with a wavy line.
v Draw a diagram to represent the story on the board.

vi Let learners determine the operation. (subtraction, we subtract, ….)
vii Let learners write the number sentence in their classwork books.
viii Write the number sentence on the board for correction: 4 500 – 1 327 = ☐
ix Read the number sentence with learners. four thousand five hundred minus one thousand three hundred and twenty-seven equal to

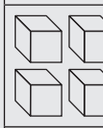
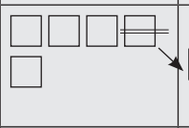
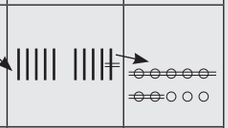
2 Say: **Draw simplified picture of 4 500 in your classwork books.**
- Draw big simplified pictorial on the board to demonstrate.
- Check that learners have laid out the ones, tens, hundreds and thousands like this:

Thousands (Th)	Hundreds (H)	Tens (T)	Ones (O)
☐☐☐☐	☐☐☐☐☐		

- Point out to the learners that we have no blocks in the ten's column or in the one's column.

3 On the board do the calculation with the base-ten kit step-by-step, with learners. Explain clearly and use language carefully. Simultaneously show how the digits in each place value are subtracted and how we 'borrow' when necessary in the same way as Lessons 17 and 18.

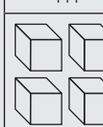
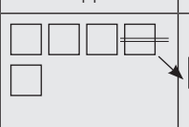
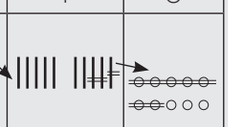
Say: **We start with the ones:**

Th	H	T	O
			
			3

TTh	Th	H	T	O
			4 9	
	4	5	⁴Ø	¹0
−	1	3	2	7
				3

- **Can we subtract 7 ones from 0 ones?** (No).
- Ask: **What do we do when we cannot subtract in a column?** (We borrow from the next column on the left).
- Say, and get learners to show with their manipulatives: **So we need to 'borrow' from the tens. BUT, there are no tens to borrow from. This means that we need to borrow 1 hundred from the 5 hundreds we have.**
- Show how to borrow 1 hundred in the Base Ten Kit. And then say, and show the working in the calculation: **We subtract the 1 hundred we have borrowed from the 5 hundreds. We have 4 hundreds left.**
- Say, and show the working in the calculation: **The 1 hundred is exchanged for 10 tens. We borrow 1 ten from the 10 tens; 9 tens remain.**
- Say, and show the working in the calculation: **The 1 ten is actually 10 ones. 10 ones subtract 7 ones is 3 ones.**

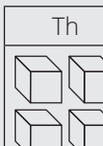
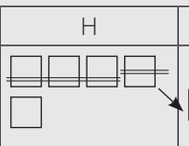
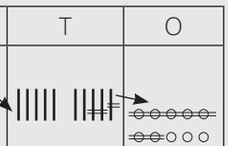
Say: **We then subtract the tens.**

Th	H	T	O
			
		7	3

TTh	Th	H	T	O
			4 9	
	4	⁴Ø	⁴Ø	¹0
−	1	3	2	7
			7	3

- 9 tens subtract 2 tens is 7 tens.

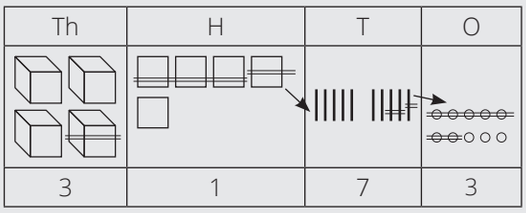
Say: **We then subtract the hundreds.**

Th	H	T	O
			
	1	7	3

TTh	Th	H	T	O
			4 9	
	4	⁴Ø	⁴Ø	¹0
−	1	3	2	7
		1	7	3

- We subtract 3 hundreds from the 4 hundreds we still have. We have 1 hundred left.

Say: **We then subtract the hundreds.**



- 1 thousands from 4 thousand. We have 3 thousands left.

TTh	Th	H	T	O
		4	9	
	4	~~5~~	$^{1}\not{0}$	$^{1}0$
–	1	3	2	7
	3	1	7	3

Say: **4 500 – 1 327 = 3 173.**

- Let learners complete the number sentence and write the answer in their classwork book.
- Write the complete number sentence with answer on the board for correction; 4 500 – 1 327 = 3 173, so the answer is 3 173 adults.

Activity 2: Learners work in pairs

- Say: **Remember: When we cannot subtract the ones and there are no tens to borrow from, we need to borrow from the hundreds. Exchange 1 hundred for 10 tens and then exchange 1 ten for 10 ones.**

Say: **Do Activity 2 in your LAB.**

- Remember that borrowing from hundreds to subtract ones is what is new in this lesson. Walk around and support learners where necessary.
- Check the process of borrowing from hundreds, exchanging for 10 tens, borrowing from tens and exchanging for 10 ones in particular.
- Mark the work once the learners have finished the Activity and discuss any problems they may have had.

Calculate.

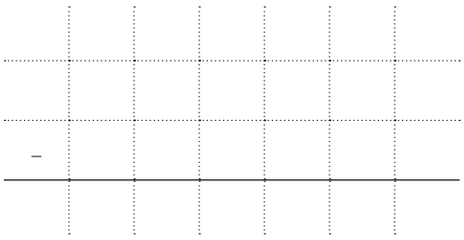
1 26 403 – 13 226 = ☐

Answer: (13 177)

2 736 504 – 225 469 = ☐

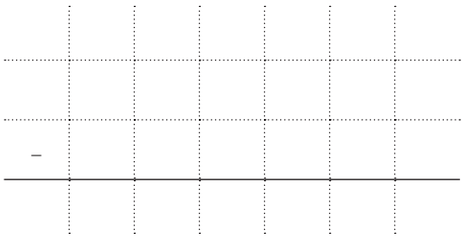
Answer: (511 035)

3 426 900 – 218 713 = ☐



Answer: (208 187)

4 987 100 – 64 524 = ☐



Answer: (922 576)

Activity 3: Learners work on their own

Say: **Do Activity 3 in your LAB.**

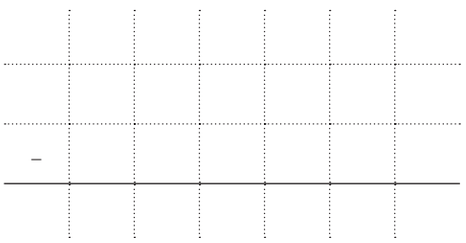
- Check that learners are able to deal with 6-digit subtract 5-digit calculations.
- Learners sometimes forget to fill in the HTh column in such calculations.
- Mark the work once the learners have finished the Activity and discuss any problems they may have had.

Calculate.

1 379 400 – 17 327 = ☐

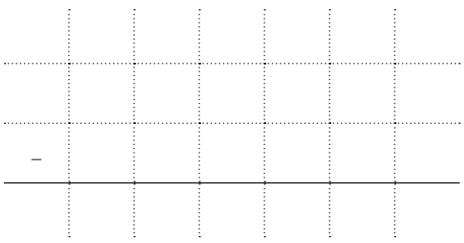
Answer: (362 073)

2 643 900 – 74 217 = ☐



Answer: (569 683)

3 597 200 – 123 614 = ☐



Answer: (473 586)

4 269 301 – 88 549 = ☐

Answer: (180 752)

5 HOMEWORK ACTIVITY (5 MINUTES)

Explain what learners need to do for homework.

Remember that the homework activities are at the back of the LAB for each term.

1.	976 400 – 235 274 = ☐	(741 126)
2.	479 500 – 97 238 = ☐	(382 262)
3.	346 200 – 115 317 = ☐	(230 883)

6 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we have learnt to subtract big numbers. We have also learnt when and how to borrow and exchange numbers.

Lesson 20: Using other methods to subtract big numbers

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum.
CAPS topics: 1.1 Whole numbers: Addition and subtraction
Lesson Objective: Use any strategy to subtract 6-digit numbers requiring borrowing from hundreds to calculate ones.
Lesson Vocabulary: subtract, borrow, column, exchange, digit, expanded notation
Resources: Individual Place Value Cards; Base 10 Kit
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

	What is ...	Answer		What is ...	Answer
1	17− 8	9	**6**	12 − 6 =	6
2	16 − 7	9	**7**	17 − 9 =	8
3	13 − 6	7	**8**	11 − 2 =	9
4	15 − 8	7	**9**	13 − 7 =	5
5	11 − 7	4	**10**	15 − 8 =	7

2 LINK TO PREVIOUS LESSON (5 MINUTES)

Ask and write the numbers: **Calculate: 500 – 369.**

- **Start with the ones. We need to subtract 9 ones from 0 ones. Who would like to come to the board and explain the next steps?**

	H	T	O
	5	0	0
−	3	6	9

- **We cannot subtract 9 ones from 0 ones, and there are no tens to borrow from. We borrow 1 hundred. The 5 hundreds becomes 4 hundreds. We exchange the borrowed hundred for 10 tens.**
- **We borrow 1 ten and are left with 9 tens. We exchange the borrowed ten for 10 ones.**

	H	T	O
	4	9	
	~~5~~	$^{+}\not{0}$	$^{1}0$
−	3	6	9

- **10 ones subtract 9 ones = 1 ones.**
- **9 tens subtract 6 tens = 3 tens.**
- **4 hundreds subtract 3 hundreds = 1 hundred**
- **So, 500 –369 = 131**

	H	T	O
	4	9	
	~~5~~	$^{+}\not{0}$	$^{1}0$
−	3	6	9
	1	3	1

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

- The answers to the Homework Activity for Lesson 19 are provided in brackets in Lesson 19. Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (35 MINUTES)

In this lesson, we continue to do 6-digit subtractions in which it is necessary to borrow from the hundreds to subtract ones. What is new is that learners can use any strategy to do the calculation.

In Grade 3 learners learnt to do subtraction by building up and breaking down. Other strategies included in Grade 3 subtractions are rounding off and compensating; doubling and halving; and the use of number lines.

In this lesson we focus on subtraction by building up (also called adding up or adding on). In the activities and assessments, learners can use any alternative strategy, but will probably find that the column method is the most effective way of subtracting large numbers.

In the first example, conceptual development is supported by a pictorial representation.

Say: **Today we will learn another way of subtracting.**

Activity 1: Whole class activity

In this lesson, learners subtract by building on.

- Say: **Subtract 3 242 from 3 618.**

- Write: **3 618 – 3 242.**
- Say: **You already know how to do this using the column method.**
  Let's practice using the column method to subtract large numbers:
- Do the calculation on the board – fill in the numbers as you speak.

	Th	H	T	O
	3	$\not{6}^{5}$	$^{11}1$	8
–	3	2	4	2
		3	7	6

- Say: **In Grade 3 you learnt that there are different methods of doing subtraction. Let's do this same example using another method of subtraction.**

- Say: **In this method, start with the second number, 3 242, and add numbers on to it until we end up with the first number. The answer is the total of the numbers we have added on.**

  We have to end up with 3 618.
  3 242 + <u>6</u> = 3 248 **… this makes the one's value correct**
  3 248 + <u>60</u> = 3 308
  3 308 + <u>10</u> = 3 318 **… this makes the ten's value correct**
  3 318 + <u>300</u> = 3 618 **… this makes the hundred's value correct.**

  So, 3 618 – 3 242 = 300 + 10 + 60 + 6 = 376

- Ask: **Is that the same answer that we got when we subtracted using the column method?** (Yes)
- Say: **Let's do another example. Again we will use the building up method to subtract.**
- Say: **Calculate 232 416 – 146 208.**
- Ask: **Which number do we start with?** (The number we are subtracting, which is 146 208)
- Ask: **What number must we build up to?** (The number we are subtracting from, which is 232 416)
- Write the building up process, explaining each step as you go along.

  We have to end up with 232 416
  146 208 + <u>8</u> = 146 216 **… this makes the unit's and ten's values correct**
  146 216 + <u>200</u> = 146 416 **… this makes the hundred's value correct**
  146 416 + <u>4 000</u> = 150 416
  150 416 + <u>2 000</u> = 152 416 **… this makes the thousand's value correct**
  152 416 + <u>80 000</u> = 232 416 **… this makes the ten thousand's and the hundred thousand's values correct.**

- Say: **232 416 – 146 208 = 80 000 + 2 000 + 4 000 + 200 + 8 = 86 208**

Activity 2: Learners work in pairs

Say: **Do Activity 2 in your LAB.**

- Mark the work once the learners have finished the Activity and discuss any problems they may have had.

			ANSWERS
1	**a**	Calculate 478 604 – 126 137. Use the building up method.	(352 467)
	b	Calculate 478 604 – 126 137. Use the column method.	
	c	Check that your answers in a. and b. are the same. If not, re-check your work to see where you have made a mistake.	
2	**a**	Calculate 532 204 – 520 127. Use the building up method.	(12 077)
	b	Calculate 532 204 – 520 127. Use the column method.	
	c	Check that your answers in a. and b. are the same. If not, re-check your work to see where you have made a mistake.	
3.	**a**	Calculate 684 600 – 573 142. Use the building up method.	(111 458)
	b	Calculate 687 600 – 573 142. Use the column method.	
	c	Check that your answers in a. and b. are the same. If not, re-check your work to see where you have made a mistake.	

Activity 3: Learners work on their own

Say: **Do Activity 3 in your LAB.**

- Mark the work once the learners have finished the Activity and discuss any problems they may have had.

Use any method to calculate:		**ANSWERS**
1	296 407 – 75 239	(221 168)
2.	349 304 – 126 079	(223 225)
3.	518 305 – 518 166	(139)

5 HOMEWORK ACTIVITY (5 MINUTES)

Tell the learners that they can use any method of their choice to do the calculations they have to do for homework.

1	538 201– 175 163	(363 038)
2	174 302 – 39 413	(134 889)
3	100 604 – 99 463	(1 141)

6 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Say: **Today we have learnt to do subtraction by building up numbers.**

Lesson 21: Adding and subtracting big numbers

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum.
CAPS topics: 1.1 Whole numbers: Addition and subtraction
Lesson Objective: Use any strategy to add and subtract up to 6-digit numbers. Use subtraction to check addition and addition to check subtraction.
Lesson Vocabulary: add, subtract, digit, calculate
Resources: Individual Place Value Cards
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

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

2 LINK TO PREVIOUS LESSON (5 MINUTES)

Ask and write the numbers: **Calculate: 16 406 – 14 218.**

- Write the calculation using the column method on the board. Do not fill in the answer yet.
- Ask: **Where did this one come from?** (It is the one T, borrowed from the tens column. It is actually 10 ones).
- Ask: **How many ones do we have once we have borrowed?** (16, which is 10 + 6)
- Ask: **Why did this 10 change to 9?** (Because we borrowed 1 T).
- Ask: **Why did this 4 change to 3?** (Because we borrowed 1H).

	TTh	Th	H	T	O
			3	9	
	1	6	~~4~~	$^{+}$~~0~~	^{1}6
–	1	4	2	1	8

- Finish the calculation on the board.
  16 406 – 14 218 = 2 188.

	TTh	Th	H	T	O
			3	9	
	1	6	4	$^{4}\not{0}$	$^{1}6$
–	1	4	2	1	8
		2	1	8	8

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

- The answers to the Homework Activity for Lesson 20 are provided in brackets in Lesson 20. Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (35 MINUTES)

In this lesson, learners use any strategy to add and subtract up to 6-digit numbers.

As addition and subtraction are inverse operations, the activities are structured in such a way as to show learners that we can use the inverse operation to check our calculations.

Note: learners are not required to know the term ***inverse operation***.

Today we are practising addition and subtraction. We will check our addition answers by subtracting, and our subtraction answers by adding.

Activity 1: Whole class activity

1 Say and write the number sentence: **Let's calculate: 132 724 + 409 219 = ☐.**

- Do the addition calculation on the board, pointing to the working done in each step.
- Work through the calculation in this order:
  - add the ones,
  - add the tens,
  - add the hundreds,
  - add the thousands,
  - add the ten thousands
  - add the hundred thousands.
- Discuss carrying as necessary
- So, 132 724 + 409 219 = 541 943

	HTh	TTh	Th	H	T	O
	1	$^{1}3$	2	7	$^{1}2$	4
+	4	0	9	2	1	9
	5	4	1	9	4	3

Do not erase the calculation from the board – you will refer to it later.

2 Say and write the number sentence: **Let's calculate: 541 943 – 409 219 = ☐.**

- Do the subtraction calculation on the board, pointing to the working done in each step.
- Work through the calculation in this order:
  - add the ones,
  - add the tens,
  - add the hundreds,
  - add the thousands,
  - add the ten thousands
  - add the hundred thousands.
- Discuss carrying as necessary
- So, 541 943 – 409 219 = 132 724

	HTh	TTh	Th	H	T	O
	5	$^{3}\not{4}$	$^{12}\not{2}$	9	$^{3}\not{4}$	3
–	4	0	9	2	1	9
	1	3	2	7	2	4

Do not erase the calculation from the board – you will refer to it later.

3 Say: Look carefully at the three numbers in the addition calculation and the three numbers in the subtraction calculation.

- Ask: **What do you notice?** (All three numbers are the same, but used differently.)
- Say: **We can check our addition by doing subtraction.**
  If we subtract one of the numbers we added from the answer, and get the other number being added, then we know our calculations are correct.
- Say: **We can also check subtraction by doing addition.**
  If we add the answer to the subtraction to the number being subtracted, and get the first number in the subtraction, then we know our calculations are correct.

4 On the board, do the two calculations: 631 604 – 540 725 = ☐ and 90 879 + 540 725 = ☐ as follows:

	HTh	TTh	Th	H	T	O
	$^{5}\not{6}$	$^{1}3$	$^{0}\not{1}$	$^{15}\not{6}$	$^{10}\not{0}^{9}$	$^{1}4$
–	5	4	0	7	2	5
		9	0	8	7	9

	HTh	TTh	Th	H	T	O
		9	$^{1}0$	$^{1}8$	$^{1}7$	9
+	$^{1}5$	4	0	7	2	5
	6	3	1	6	0	4

Discuss the link between addition and subtraction.
Say: **We can use addition to check subtraction and can use subtraction to check addition.**

Activity 2: Learners work in pairs

Say: **Do Activity 2 in your LAB.**

– Mark the work once the learners have finished the Activity and discuss any problems they may have had.

Calculate and then check your answer.

1

	4	1	5	2	9	6
–	3	0	2	6	4	7

415 296 – 302 647 =(112 649)

+	3	0	2	6	4	7

(112 649) + 302 647 = (415 296)

2

	9	2	3	4	0	3
–	1	7	3	2	6	4

923 403 – 173 264 =(750 139)

+	1	7	3	2	6	4

(750 139) + 173 264 = (923 403)

3 a

	2	9	3	3	1	6
+	6	2	8	4	3	4

293 316 + 628 434 = (921 750)

–	6	2	8	4	3	4

(921 750) – 628 434 = (293 316)

b And also use the answer to calculate:

–	2	9	3	3	1	6

(921 750) – 293 316 = (628 434)

4 a

	1	0	3	4	6	0
+		9	8	2	1	6

–		9	8	2	1	6

103 460 + 98 216 = (201 676)

(201 676) - 98 216 = (103 460))

b And also use the answer to calculate:

–	1	0	3	4	6	0

(201 676) – 103 460 = (98 216)

Activity 3: Learners work on their own

- These are extra examples you can use if you have enough time. If there is not time in the lesson for the learners to do Activity 3, leave it out.

Say: **Do Activity 3 in your LAB.**

- Mark the work once the learners have finished the Activity and discuss any problems they may have had.

Calculate. Use any method.	**ANSWERS**
1. 459 678 + 362 354	(822 032)
2. 369 413 + 26 009	(395 422)
3. 346 904 – 27 847	(319 057)
4 111 111 – 99 999	(11 112)
5 123 603 –12 744	(110 859)
6 285 643 + 426 467	(712 110)

5 HOMEWORK ACTIVITY (5 MINUTES)

- Say: **You can use any method to do the calculations.**
- Say: **There is a mixture of addition and subtraction calculations**

Calculate. Use any method

1	738 624 + 171 386 =	910 010
2	239 406 – 12 107 =	227 299
3	981 612 + 9 000 =	990 612
4	482 205 – 18 316 =	463 889

6 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we have revised addition and subtraction of big numbers. We have also learnt that we can use subtraction to check addition, and addition to check subtraction.

Lesson 22: Consolidation

Teacher's notes		
This lesson allows for consolidation of the previous days' lesson content.		
CAPS topics:		
Lesson Objective: Use any strategy to add and subtract 5-digit and 6-digit numbers.		
Lesson Vocabulary: add, subtract, digit, column, expanded notation		
Resources: Base 10 kit; Individual Place Value Cards		
Date:	Week	Day

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

Learners have used a range of strategies, including the column method, to add and subtract 5- and 6-digit numbers. Learners have done calculations involving a variety of carrying, borrowing and exchanging possibilities. Learners have done calculations with zeros in the numbers and/ or answers and have done calculations involving a mix of 5-digit and 6-digit numbers.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

Some learners might still think that zero means nothing. This shows up in their working when they simply ignore the zeros in a number, or fail to write zeros in the answer. Calculation errors often occur when learners do not keep digits in the correct place value columns.

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

- The answers to the Homework Activity for Lesson 21 are provided in brackets in Lesson 21. Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

Complete this week's classwork as needed.

4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION

Select activities listed here from the textbook/s you have. Use the answers given in the LB to mark the work.

	Fabulous	Oxford Headstart	Oxford Successful	Platinum	Premier	Sasol Inzalo	Solutions for All	Study & Master	Vivlia
LB	22-41 202	19-38 228-231, 254-256	18-29 80-85 260	9-17 116, 157	7-13 180 - 181	18-43 128-135 243-249 293-296	5-17 250-253	5-37 255	8-16 102-105 175

	Fabulous	Oxford Headstart	Oxford Successful	Platinum	Premier	Sasol Inzalo	Solutions for All	Study & Master	Vivlia
TG	15-24	38-62	45-56	9-15	5 – 7	19-48	5 – 13	46-54	9-13
	70-73	121-136	90-96	48-52	31-32	139-148	105-113	145-154	36-37
	134-135	238-243	144	109-111	68	275-282	169-178		67-68
	179	292-293	200-202	156-157	94-96	340-344	250-254	267-271	87-89
								340-342	

OR, learners could complete this Consolidation Activity in their LAB.

Consolidation Activity

ANSWERS

1 Write a number sentence before you do each calculation:
Thandi made a placemat. She used 2 407 white beads and 1 378 blue beads.

a How many beads did Thandi use altogether? — **a** (3 785 beads altogether)

b How many more white beads than blue beads did Thandi use? — **b** (1 029 more white beads than blue beads)

c How many beads less than 5 000 did Thandi use? — **c** (1 215 beads less than 5 000 beads)

2 Calculate:

a 30 000 + 60 000 = ☐ — **a** (90 000)

b 40 000 – 10 000 = ☐ — **b** (30 000)

3 Use the column method to calculate:

a 34 563 + 23 409 = ☐ — **a** (57 972)

b 67 416 – 62 519 = ☐ — **b** (4 897)

c 132 203 – 118 134 = ☐ — **c** (14 069)

4 Use any method to calculate:

a 829 563 – 337 471 = ☐ — **a** (492 092)

b 243 807 – 32 451 = ☐ — **b** (211 356)

5 Calculate, and then add to check your answer:

a. 234 567 – 132 288 = ☐

b. 169 432 – 16 943 = ☐

a. (102 279)
102 279 + 132 288 = (234 567)

b. (152 489)
152 489 + 16 943 = (169 432)

5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we have revised addition and subtraction of big numbers. This has helped us to prepare for the assignment we will be working on in the next lesson.

Lesson 23: Assignment

Teacher's notes		
This lesson should be used for assessment of the content covered in units 1 and 2, Term 1.		
CAPS topics: 1.1 Whole numbers		
Resources: Printable Assignment in Teacher's Resource Pack.		
Date:	Week	Day

WHAT IS AN ASSIGNMENT?

- A Grade 4 assignment should be out of 25 marks.
- An assignment is a well-structured task with clear questions and well-defined answers
- It is mainly an individualised task.
- It can be a collection of past questions, but should focus on more demanding work.
- It can consist of questions that apply an approach or method studied in class to a new context.
- Both the content and contexts of the assignment are likely to be familiar to the learner.

1 SETTLE THE CLASS, HAND THE ASSIGNMENT OUT AND LET THE LEARNERS WORK ON THE ASSIGNMENT. (30 MINUTES)

- You will find the printable version of the assessment in the Teacher's Resource Pack.
- A blank page is given in the LAB for the learners to write down corrections, do practice examples and write notes.
- Allow the learners sufficient time to complete the work. If you find that they need more than 30 minutes to complete the work, then allow it to them.
- If you feel that that the two questions in Question 4 are too difficult for your learners, then get them to do 4 a) only. Keep 4 b) for a later stage during the year. OR you could give Question 4 to your faster learners only and could then see how they cope with an unseen activity like this one.
- Take in the learners' work when they are finished.
- Tell the learners that they are going to mark each other's work and that you are going to check the marking and give the final mark to each assignment.
- Mix the assignments up and hand them out, making sure that learners don't get their own work.
- Discuss the answers with the learners and let the learners mark each other's work.
- 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.
- Take in the assignments at the end of the lesson. In your own time check the marking, total the marks and record them.

Say: **The Assignment for today is linked to the work covered in Units 1 and 2.**

1 Write down the value of the underlined number

a 7 256 0<u>0</u>1 (0 tens) ✓

b <u>5</u>63 256 (five hundred thousand). ✓

c 7 34<u>0</u> 213 (zero thousands or no thousands or nought thousands) ✓

(3)

2 Use the place value chart to work out what each number is. Then write the number in words in the space provided.

a I have 7 thousands, 1 millions, 3 ones, 1 hundred thousands, 6 tens, 0 ten thousands and 4 hundreds.

M	HTh	TTh	Th	H	T	O
1	1	0	7	4	6	3

What number am I? (one million, one hundred and seven thousand, four hundred and sixty-three)
✓ for getting the number correct in the table; ✓ for writing the number in words correctly

b I have 4 tens, 3 hundred thousands, 2 ones, 7 thousands, 9 ten thousands and 0 hundreds.

M	HTh	TTh	Th	H	T	O
	3	9	7	0	4	2

What number am I? (three hundred and ninety-seven thousand and forty-two)
✓ for getting the number correct in the table; ✓ for writing the number in words correctly

c I have 2 hundreds, 6 hundred thousands, 7 millions and 5 tens.

M	HTh	TTh	Th	H	T	O
7	6	0	0	2	5	0

What number am I? (seven million, six hundred thousand, two hundred and fifty)
✓ for getting the number correct in the table; ✓ for writing the number in words correctly

(6)

3 Calculate the following:

a

$$\begin{array}{r} 213 \\ +\ 309 \\ \hline 522 \\ \checkmark\ \checkmark\ \checkmark \end{array}$$

b

$$\begin{array}{r} 8\ {}^{4}\not{5}\ {}^{9}\not{1}\not{0}\ {}^{1}4 \\ -\ 5\ 3\ 8\ 7 \\ \hline 3\ 1\ 1\ 7 \\ \checkmark\ \checkmark\ \checkmark\ \checkmark \end{array}$$

(7)

EXTENSION ACTIVITY

4 Find the missing digits. When letters are repeated, they stand for the same digit. If necessary, work backwards to find the missing digits

a

$$\begin{array}{r} 9\ \mathbf{a}\ 2 \\ \mathbf{a}\ 0\ 9 \\ +\ \mathbf{a}\ 2\ 3 \\ \hline \mathbf{c}\ \mathbf{b}\ \mathbf{b}\ \mathbf{a} \end{array}$$

$$\begin{array}{r} {}^{1} \\ 9\ \mathbf{4}\ 2 \\ \mathbf{4}\ 0\ 9 \\ +\ \mathbf{4}\ 2\ 3 \\ \hline \_\ \_\ \_\ \mathbf{4} \end{array}$$

2+9+3=14. Write down the 4 and carry the 1

Fill in the other 4s

a = (4) ✓

$$\begin{array}{r} {}^{1} \\ 9\ \mathbf{4}\ 2 \\ \mathbf{4}\ 0\ 9 \\ +\ \mathbf{4}\ 2\ 3 \\ \hline \_\ \mathbf{7}\ \mathbf{7}\ \mathbf{4} \end{array}$$

4+0+2+1=7

Write down the 7

Fill in the other 7s.

b = (7) ✓

						^{1}		
					9	**4**	2	*9+4+4=17*
					4	0	9	*So fill in the 1*
				+		**4**	2	3	
					1	**7**	**7**	**4**	c = (1) ✓

b

	n	0	**n**	9
–	**q**	**p**	8	7
	m	6	6	**m**

	n	0	**n**	9	*Take 7 from 9*
–	**q**	**p**	8	7	*Write down the 2*
	2	6	6	**2**	*Fill in the other 2.*
					m = (2) ✓✓

Hint

Use addition to find the missing digits.

Remember

We can use addition to check subtraction.

	4	0	**4**	9	*Add 6 and 8*
–	**q**	**p**	8	7	*We get 14. Write down the 4.*
	2	6	6	**2**	*Fill in the other 4*
					n = (4) ✓✓

	4	0	**4**	9	*What do we add to 6 and 1 to get 0 (or 10)?*
–	**q**	**3**	8	7	*We get 3.*
	2^{+1}	6^{+1}	6	**2**	p = (3) ✓

	4	0	**4**	9	*What do we add to 2 + 1 to get 4?*
–	**1**	**p**	8	7	*We get 1.*
	2^{+1}	6^{+1}	6	**2**	q = (1) ✓

(7)

Total: 25 marks

COGNITIVE LEVELS

Question	Knowledge	Routine procedure	Complex procedures	Problem solving
1	3			
2			6	
3	3	4		
4				9