MATHEMATICS

Grade 4

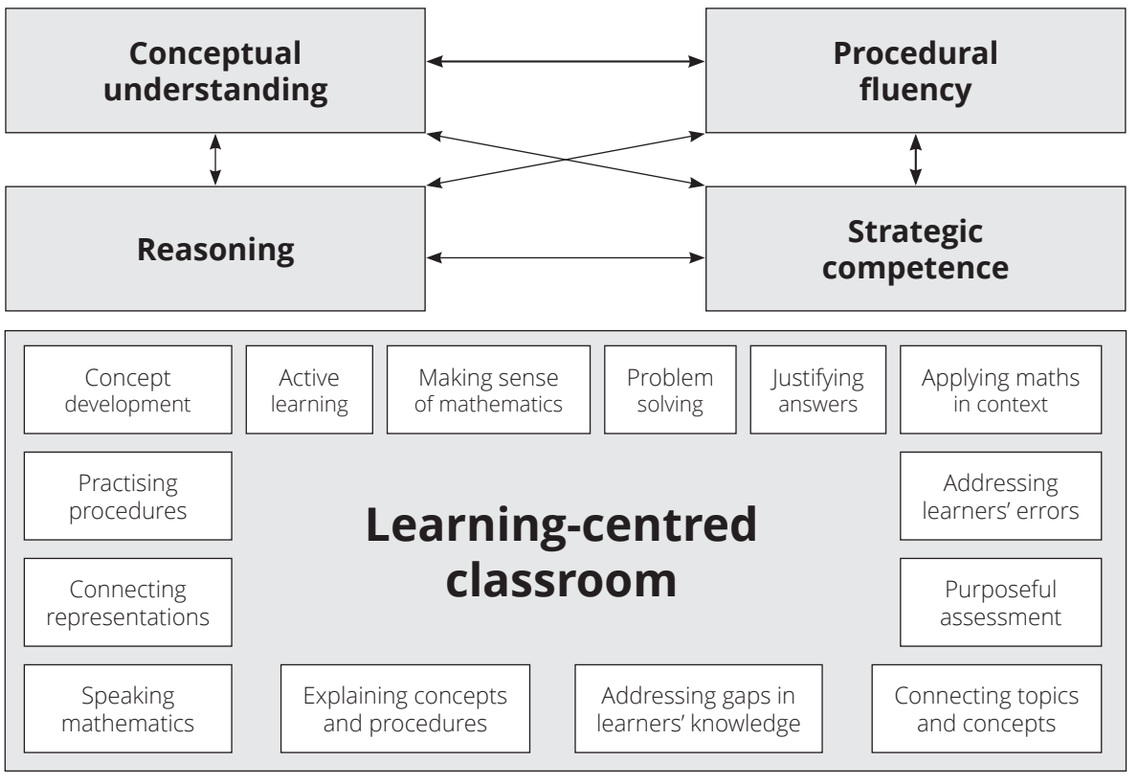
TERM 2 2020

Lesson Plans

Contents

Teaching mathematics for Understanding (TMU)

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



The Framework proposes 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

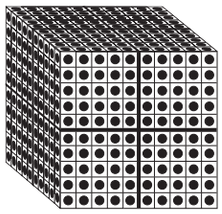
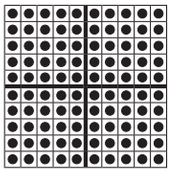
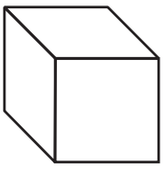
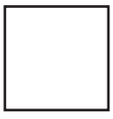
At the start of each unit, we provide examples of how the four dimensions of the framework are included in the lesson plans.

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				

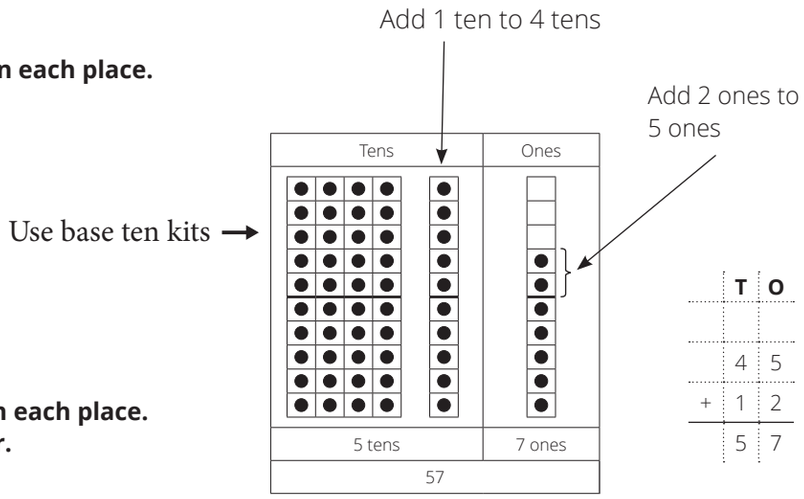
In the CPA approach, the following methods are important:

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

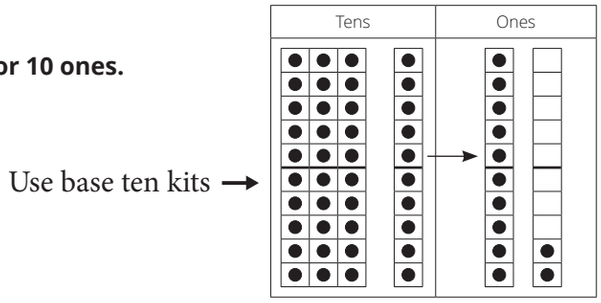
Step 1. Add bottle tops in each place.

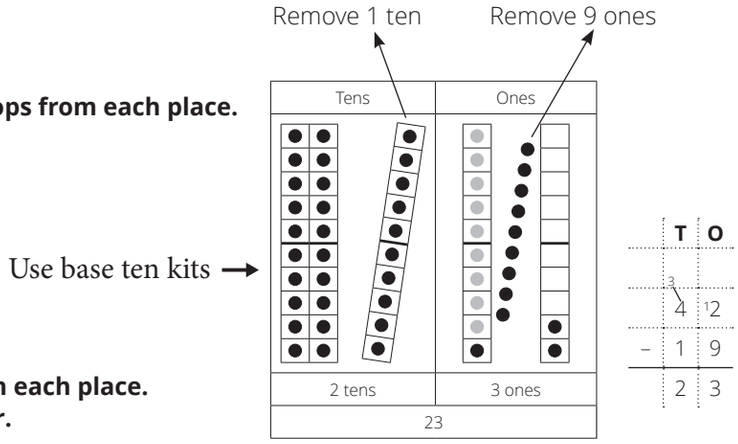


Step 2. Write numbers in each place.
Step 3. Write the answer.

2) 42 – 19

Step 1. Exchange 1 ten for 10 ones.





Step 2. Remove bottle tops from each place.

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

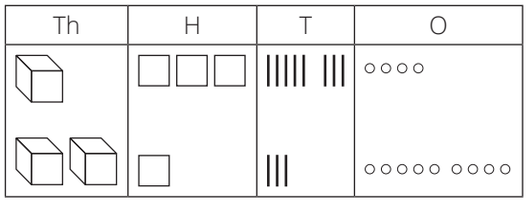
b. Column method using simplified pictorials [PICTORIAL REPRESENTATION] (Grade 3, 4)

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.

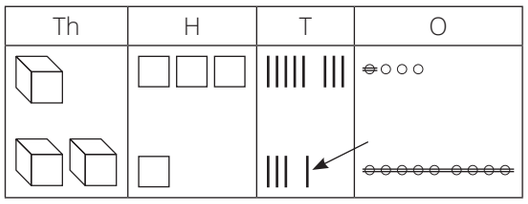
In the following diagrams, all the steps can be drawn as follows:

1) 1 384 + 2 139

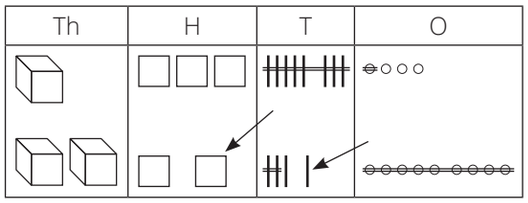
Step 1. Draw 1 384 and 2 139 vertically.



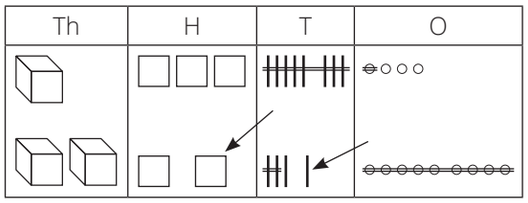
Step 2. Since 4 + 9 in the ones place exceeds 10, exchange 10 ones for 1 ten (carrying).



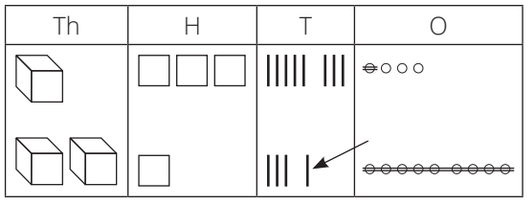
Step 3. Since 8 + 4 in the tens place exceeds 10, exchange 10 tens for 1 hundred (carrying).



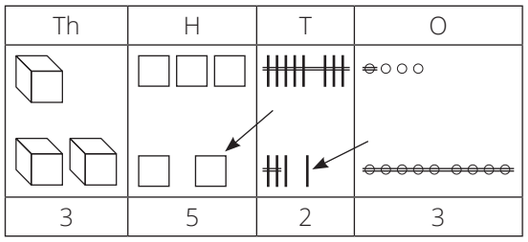
Step 4. Since 3 + 2 in the hundreds place does not exceed 10, there is no need to exchange (carry).



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



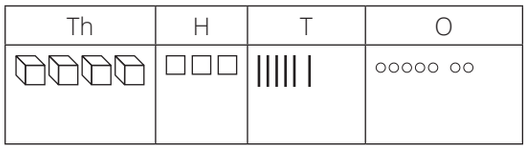
The answer is 3 523

We write this:

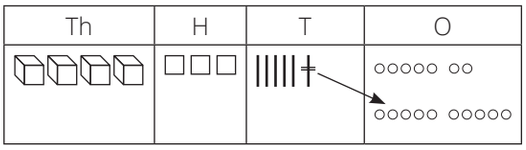
	Th	H	T	U
		1	1	
	1	3	8	4
+	2	1	3	9
	3	5	2	3

2) 4 367 – 2 278

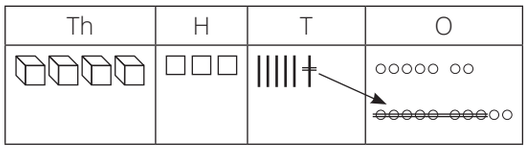
Step 1. Draw 4 367



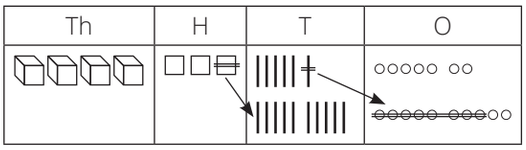
Step 2. Start in the ones place. Since we can't do 7 – 8, exchange 1 ten for 10 ones (borrowing).



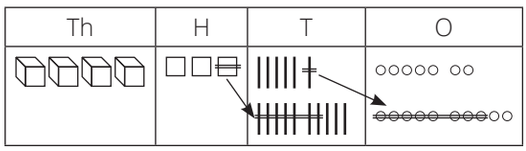
Step 3. 17 – 8 = 9 in the ones place.



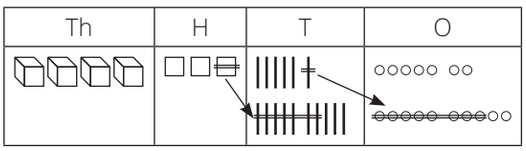
Step 4. Since we can't do 5 – 7 in the tens place, exchange 1 hundred for 10 tens (borrowing)



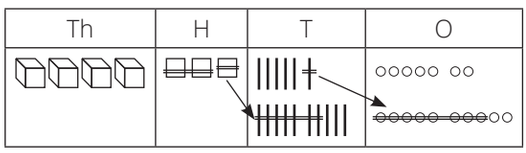
Step 5. 15 – 7 = 8 in the tens place.



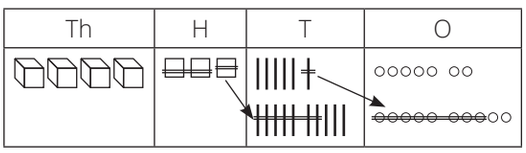
Step 6. We can do 2 – 2 in the hundreds place, so we do not need to exchange (borrow).



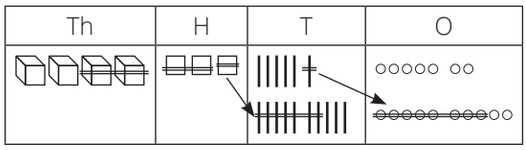
Step 7. 2 – 2 = 0 in the hundreds place.



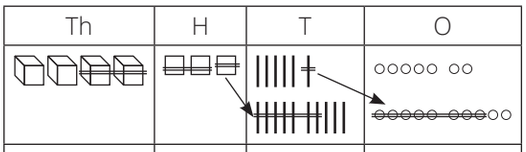
Step 8. We can do 4 – 2 in the thousands place, so we do not need to exchange (borrow).



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



Step 10. Write the answer



Th	H	T	O
2	0	8	9

The answer is 2 089

We write this:

	Th	H	T	U
		2	1 5	1
	4	~~3~~	~~6~~	7
–	2	2	7	8
	2	0	8	9

c. Column method [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

WORD PROBLEMS BY PROBLEM TYPE

- These problem types are given to guide the teacher. Learners do not need to know the names of the problem types, nor do they need to be able to identify the problem type. Learners do not need to know operation terms such us multiplier or product.

- There are different problem types for addition, subtraction, multiplication and division word problems. Since Grade 1, learners have been exposed to word problems involving a variety of problem types. It is important for you, the teacher, to be aware of the different problem types and to present these repeatedly so that learners become familiar with all of them and are able to work with all of them.

- It is important that learners learn to solve all these different types of problems. Being able to do so will help them acquire a full understanding of the meaning of all four operations.

- All problem types discussed below are addressed in the Grade 4 Lesson Plans and Learner Activity Books.

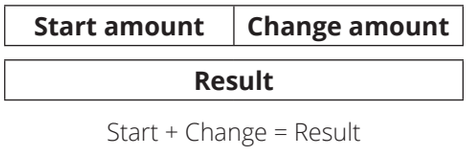
1. TYPES OF ADDITION AND SUBTRACTION WORD PROBLEM

A. COMBINE WORD PROBLEMS (OR 'ADD TO')

The change amount is added to the start amount to give the result.

There are three quantities involved in join word problems:

- the **start amount** or original amount
- a **change amount** (the amount being added or joined)
- the **result** (the total amount after the change takes place).

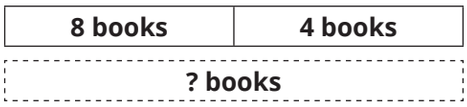


Start + Change = Result

Any of these three quantities can be the unknown in a combine problem.

a Result is the unknown

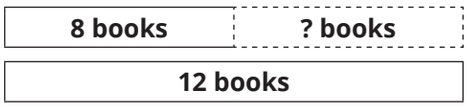
Zandile has 8 books.
Justice gave her 4 books.
How many books does Zandile have altogether?



8 + 4 = ?

b Change is the unknown

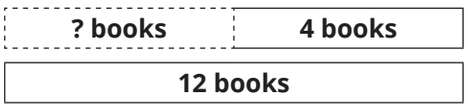
Zandile has 8 books.
Justice gave her some more books.
Now Zandile has 12 books.
How many books did Justice give her?



8 + ? = 12 or 12 – ? = 8

c) Start is the unknown

Zandile had some books.
Justice gave her 4 books.
Now Zandile has 12 books.
How many books did Zandile have to start with?



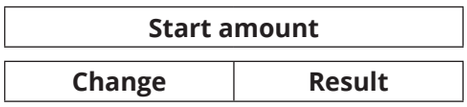
? + 4 = 12 or 12 – 4 = ?

B. CHANGE WORD PROBLEMS (OR 'TAKE FROM')

*The opposite of joining is **separating**. The change amount is subtracted from the start amount to give the result.*

There are three quantities involved:

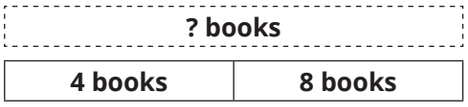
- The **start amount** or **original amount**.
- a **change amount** (the amount being removed from the original)
- the **end amount** or **result** (the total amount after the change has taken place).



Any of these three quantities can be the unknown in a change word problem.

a Start is the unknown

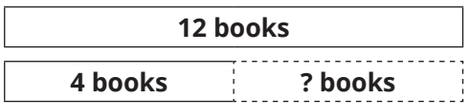
Zandile had some books.
She gave 4 books to Justice.
Zandile has 8 books left.
How many books did Zandile have to start with?



4 + 8 = ?

b Result is the unknown

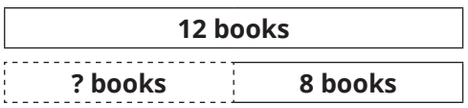
Zandile has 12 books.
She gave 4 books to Justice.
How many books does Zandile have now?



4 + ? = 12 or 12 – 4 = ?

c) Change is the unknown

Zandile has 12 books.
She gave some books to Justice.
Now she has 8 books.
How many books did she give to Justice?



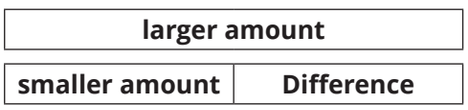
With both the Combine and the Change word problem types, the 'finding the Result' is easiest and 'finding the Start amount' is the most difficult problem type.

C. COMPARE WORD PROBLEMS

COMPARE Word Problems involve the comparison of two quantities. The third amount is the difference between the two parts.

There are three quantities involved:

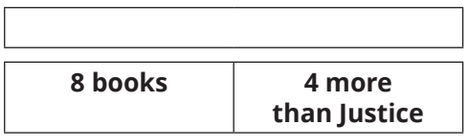
- The **larger amount**
- The **smaller amount**
- The **difference**.



Any of these three quantities can be the unknown in a compare word problem.

a Larger amount is the unknown

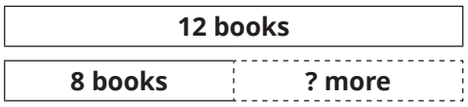
Justice has 8 books.
Zandile has 4 more books than Justice.
How many book does Zandile have?



8 + 4 = ?

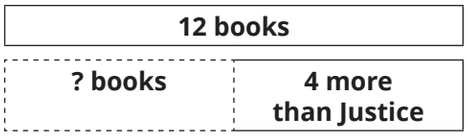
b Difference is the unknown

Zandile has 12 books.
Justice has 8 books.
How many more books does Zandile have than Justice?



8 + ? = 12 or 12 – 8 = ?

c) Smaller amount is the unknown
Zandile has 12 books.
Zandile has 4 more books than Justice.
How many books does Justice have?



8 + 4 = ?

With Compare word problems, the 'finding the Larger Amount' is easiest and 'finding the Smaller amount' is the most difficult.

WHEN MORE DOES NOT MEAN ADD

Learners look for verbal cues when solving word problems. "More" usually (but not always) suggests addition and "less" usually (but not always) suggests subtraction. Learners should be made aware of problems where these words suggest the opposite of what they usually do.

For example: Smangi has 14 books which is 2 more than Yvonne. How many books does Yvonne have?

Learners who can write this as 14 – 2 = ? are well on their way to understanding addition and subtraction.

2. TYPES OF MULTIPLICATION AND DIVISION WORD PROBLEM

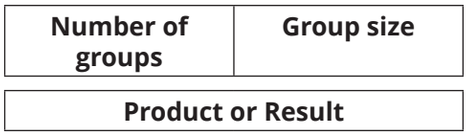
In multiplication and division problems:

- one number or *factor* counts **how many groups** or parts of equal size are involved
- the other factor tells the **size of each group** or part
- the third number in each of these two structures is the *result* or *product* and is the total of all of the parts.

A. MULTIPLICATION AND DIVISION WORD PROBLEMS

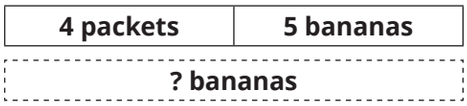
The three quantities involved are:

- The **number of groups**
- The **group size**
- The **product** or **result**



Any of these three quantities can be the unknown in a problem.

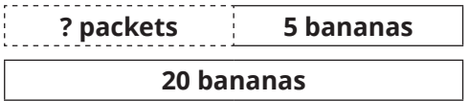
a Product or result is unknown
Patience has 4 packets of bananas.
There are 5 bananas in each packet.
How many bananas does Patience have?



4 × 5 = ?

b Number of groups is unknown

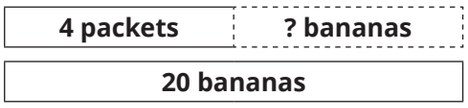
Patience has 20 bananas.
She puts them in packets with 5 bananas in each packet.
How many packets did she use?



? × 5 = 20 or 20 ÷ 5 = ?

c) Group size is unknown

Patience has 20 bananas.
She wants to share them equally among 4 packets.
How many bananas will there be in each packet?



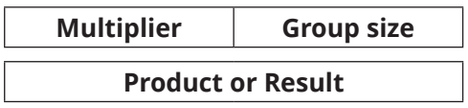
4 × ? = 20 or 20 ÷ 4 = ?

B. COMPARISON WORD PROBLEMS

Comparison problems involve the comparison of two quantities where one quantity is described in terms of how many times larger it is than the other. Larger can also mean longer, wider, taller or faster.

There are three quantities involved:

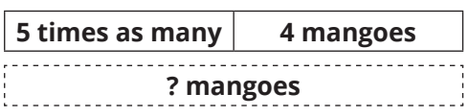
- The **multiplier** which tells you how many times bigger the product is than the set size.
- The **group size**
- The **product** or **result**.



Any of these three quantities can be the unknown in a problem.

a Product or result is unknown

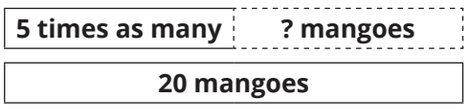
Sipho picked 4 mangoes.
Siza picked 5 times as many.
How many mangoes did Siza pick?



5 × 4 = ?

b Group size is unknown

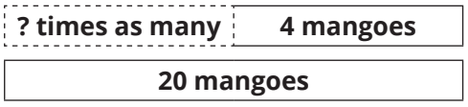
Sipho picked 20 mangoes.
He picked 5 times as many as Siza.
How many mangoes did Siza pick?



5 × ? = 20 or 20 ÷ 5 = ?

c) Multiplier is unknown

Sipho picked 20 mangoes.
Siza picked 4 mangoes.
How many times as many mangoes did Sipho pick than Siza?

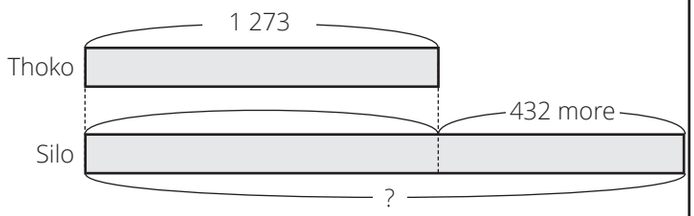


? × 4 = 20 or 20 ÷ 4 = ?

2. GENERAL PROCEDURE TO FOLLOW WHEN SOLVING WORD PROBLEMS

The hardest part of any word problem is deciding which operation to use. There can be so many details included in a word problem that the question being asked gets lost in the whole situation. Taking time to identify what is important, and what is not, is essential. Remember, if you don't know what is being asked, it will be very difficult to know if you have a reasonable answer.

Following this procedure will help the learners understand what is required of them:

<table>
<tr><th colspan="2">THE FOUR STEPS TO FOLLOW WHEN SOLVING WORD PROBLEMS</th></tr>
<tr><td>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.</td><td>For example:
Thoko has ran 1 273 metres.
Silo ran 432 metres further (more) than Thoko.
How far did Silo run?
Solution:
 
</td></tr>
<tr><td>Step 2: Devise a plan
1 Determine the operation. (+; –; ×; ÷)
2 Write a number sentence.</td><td>We have to add.
1 273 + 432 = ☐</td></tr>
<tr><td>Step 3: Carry out the plan
1 Do the calculation
2 Find the answer to the number sentence.</td><td>1 273 + 432 = 1 705
Silo ran 1 705 metres.</td></tr>
<tr><td colspan="2">Step 4: Look back
1 Compare learners' solutions.
2 Do the corrections.
3 Let learners record the work in their books.</td></tr>
</table>

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

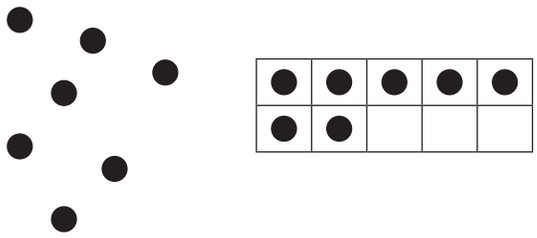
SUBITISING

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.

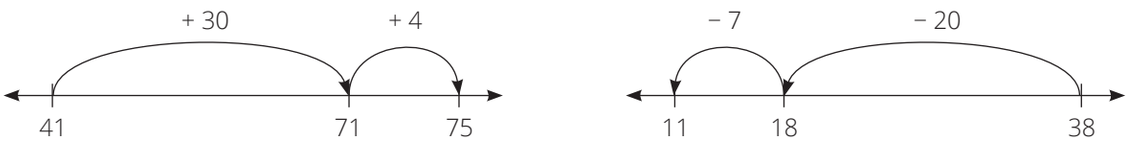


JUMPING STRATEGIES ON A NUMBER LINE

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

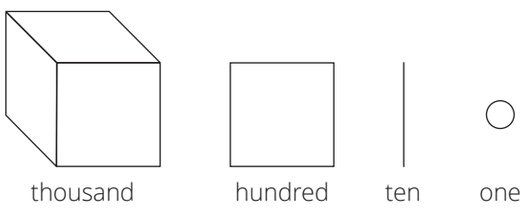
CONCRETE-PICTORIAL-ABSTRACT (CPA) APPROACH (ALSO KNOWN AS THE CRA APPROACH)

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 for not 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).

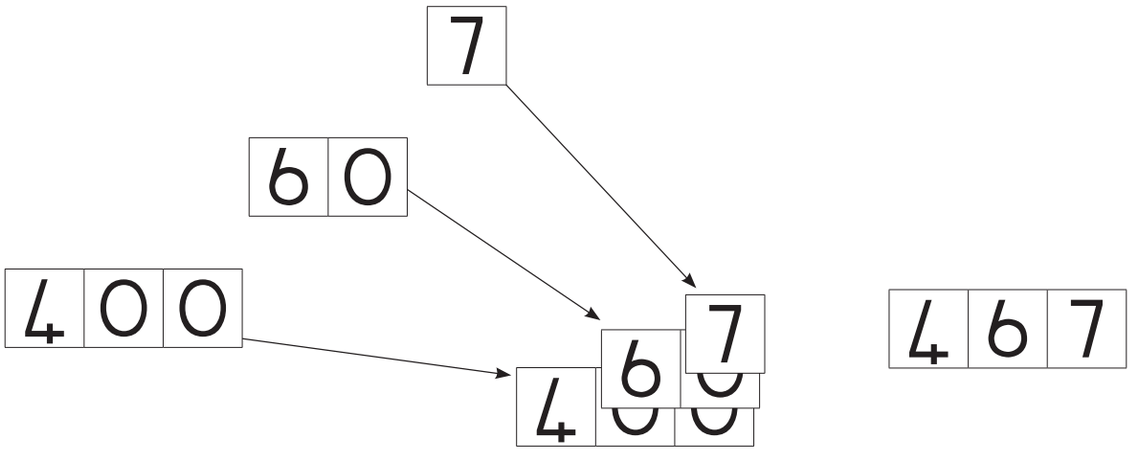
Example of the number 5 137 469 shown in a place value table:

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.

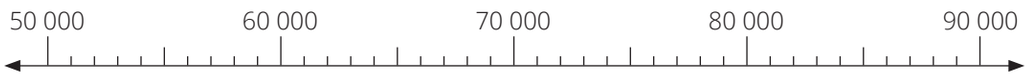
To find whether this learner understands the concept of place value, you could ask the learner to SAY the number to you or ask them to tell you what each digit in the number represents.

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)

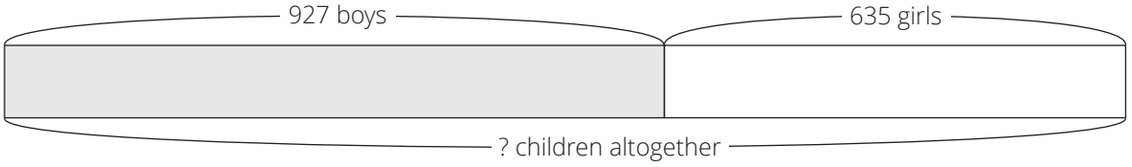
Multiplication tables show the multiples of numbers – the answers to the multiplication of several 1-digit multiplications, depending on the number of the multiplication table.

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, 2-D 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.

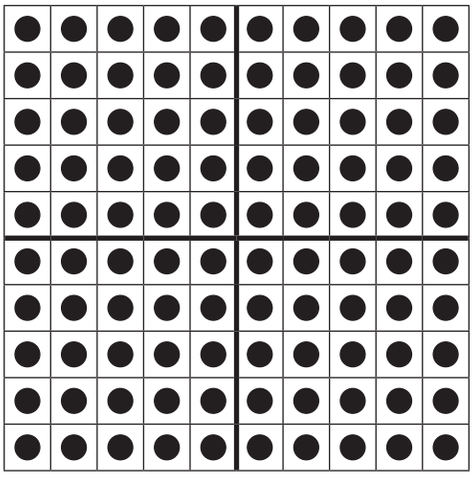
If any of your Grade 4 learners need support provided by ten frames, ask a colleague in the Foundation Phase, particularly Grade 1, for advice on the use of ten frames.

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.

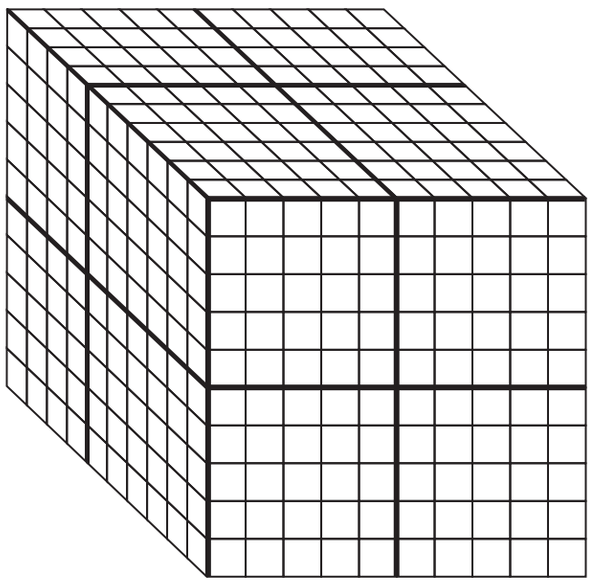
PRINTED HUNDREDS (GRADE 3, 4)

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



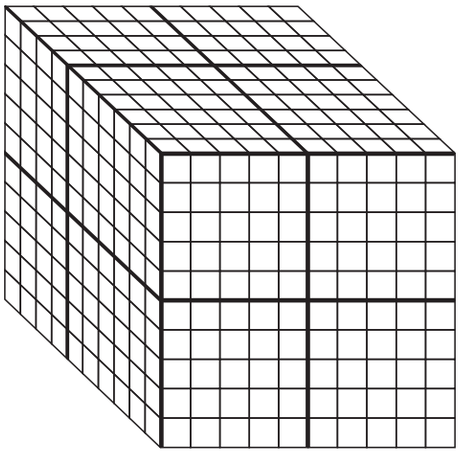
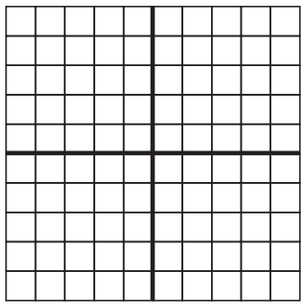
PRINTED THOUSANDS (GRADE 4)

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)

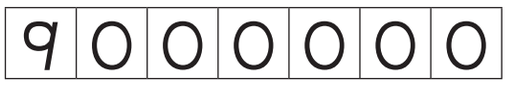
Base 10 kits are the concrete number representations used in the TMU lesson plans as 'counters' for ones, tens, hundreds and thousands. Bottle tops are used as single counters (to count ones), printed tens are used to count tens, printed hundreds are used to count hundreds and printed thousands are used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

1 000	100	10	1
thousand	hundred	ten	one
			

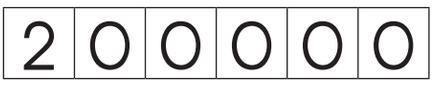
PLACE VALUE CARDS

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 times 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) and a set of printable resources for the learners to cut out and use
- 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 mental maths activities and 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.

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 task with the class.

5 MANAGING YOUR TEACHING USING THE LESSON PLAN

The formal curriculum for Term 2 of Grade 4 is covered in a set of 48 numbered lesson plans, paced to cover a 48-day teaching term. This includes 39 fully planned lessons, 3 assessment lessons and 6 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 the 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 Grade 4 TMU Time Allocation Per Topic**. 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 2-D 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 2-D 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 activities immediately after the learners have finished them 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

TMU: 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 3D 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**	

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 3D 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 3D 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**	

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 at the beginning of each unit and 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 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 the 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: 2-D shapes

INTRODUCTION

This unit focuses on 2-D shapes.

In mathematics education, the Van Hiele model is a theory that describes how learners learn geometry (space and shape). The model consists of levels that describe the development of geometrical thinking. These levels help us to understand how learners think about shapes and influence the way in which we teach shape.

The first two van Hiele levels are:

Level 0 Visualisation: At this level, the focus of a learner's thinking is on individual shapes and 'what shapes look like'.

Level 1 Analysis: At this level, learners recognise and characterise shapes by their properties. If a figure is sketched on the blackboard and the teacher claims it is a square with four equal sides and four corners that are each a right-angle, the learners accept that it is a square, even if it is poorly drawn.

As learners in Grade 4 (about 9 years old) are mostly functioning at Levels 0 and 1, you will find that the emphasis in this unit is on the appearance (what it looks like) and characteristics (number of sides, number of corners, measurement of the sides and of corners) of certain 2-D shapes. The lessons focus on these levels in order to develop the learners' conceptual understanding, procedural fluency, strategic competence and reasoning.

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	Learners do practical activities which are designed to develop their understanding of a right angle
Procedural fluency	Learners use alpha-numeric grid references repeatedly in different contexts in order to locate items on grids and places on maps with alpha-numeric grids.
Strategic competence	Learners decide how to pack out different 2-D shapes to form tessellations
Reasoning	Learners work out how to cut a triangle to form a quadrilateral and a triangle

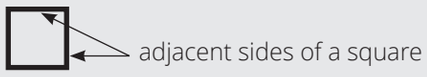
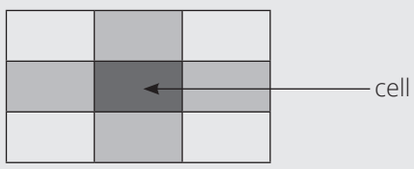
In this unit, we build a **learning centred classroom** by paying attention to:

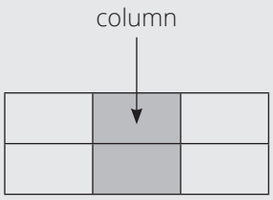
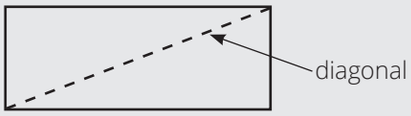
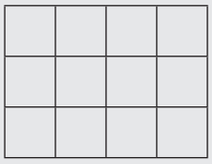
		Examples
Concept development	✓	Done in all lessons
Speaking mathematics	✓	Learners use the correct terminology when talking about 2-D shapes and polygons
Practising procedures	✓	Learners repeat the same procedure when investigating the characteristics of different 2-D shapes
Justifying answers	✓	Learners explain why they claim a particular 2-D shape to be a square
Addressing learners' errors	✓	Classwork and homework activities are corrected immediately so that learners' errors can be identified and addressed
Active learning	✓	Learners work individually and in pairs to discover the properties of rectangles, squares and right-angled triangles
Applying maths in context	✓	Learners use a map with an alpha-numeric grid to locate places in an area

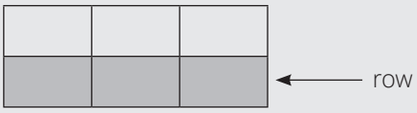
Mathematical vocabulary for this unit

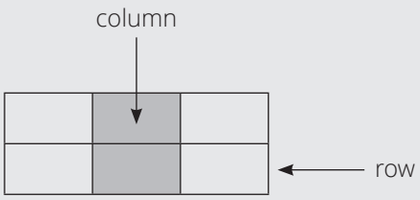
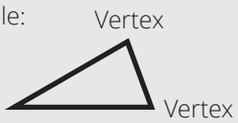
Be sure to teach and use the following vocabulary at the appropriate place in the unit.
It is a good idea to make flashcards of words and their meanings and to display these in the classroom at appropriate times.

Refer to the bilingual dictionary where necessary.

Term	Explanation / diagram
2-D	Two-dimensional. Two-dimensional shapes are flat shapes. They have length and width but no thickness.
adjacent	Next to Example: 
at least	Not less than
cell	Block formed where a row and a column cross. All cells in the grid can be specified when you use an alpha numeric grid Example: 

Term	Explanation / diagram
characteristic	Property Example: A characteristic of a square is that it has four sides of equal length and four corners that are right angles
circle	A 2-D shape that is completely round. Example: 
closed 2-D shape	A 2-D shape that has no beginning and no end. All the curved or straight sides are joined.
column	A vertical 'slice' in a grid or table Example: 
diagonal	A straight line that joins any two corners of a shape. 
grid	A pattern of straight lines that cross at right angles. Most grids are squares but they can also be rectangles or triangles. 
grid paper	squared paper
hexagon	A closed 2-D shape with six straight sides. Example: 
identical	The same. When two or more shapes are identical, they have the same shape, size and colour
locate	Find the position of

Term	Explanation / diagram
opposite	On the other side Example: 
orientation	Direction in which something faces
pentagon	A closed 2-D shape with five straight sides Example: 
polygon	A closed 2-D shape with straight sides Polygons can have different numbers of sides. The sides could all be the same length, or differing lengths
property	Things like number of sides, lengths of the sides, sizes of corners. You talk about the property of something when you describe it.
quadrilateral	Any closed 2-D shape with four straight sides. The sides do not need to be the same length. Example:  A square and a rectangle are both quadrilaterals.
record	Write down or draw
rectangle	A closed 2-D shape with two pairs of opposite sides of equal length and four right angles Example: 
right angle	A corner of something rectangular like a book, rectangular piece of paper or corner of a door or window. The angle at the corner of a square or rectangle Example: 
right-angled triangle	A closed 2-D shape with three sides and one right angle Example: 
row	Horizontal 'slice' in a grid or a table Example: 

Term	Explanation / diagram
side	Straight or curved lines that makes up a triangle, quadrilateral, circle or other 2-D shapes
square	A closed 2-D shape with four straight sides of equal length and four corners that are right angles Example: 
straight	Without curves Example: This is a straight line:
table	System of arranging information in rows and columns Example: 
tangram	Puzzle made up of triangles, a square and a quadrilateral cut out of a square. The tangram pieces can be used to make new shapes.
tessellation	Tiling pattern formed when 2-D shapes are placed next to each other in such a way that there are no gaps and no overlaps
tile	2-D shape used to create a tessellation
triangle	A closed 2-D shape with three straight sides Example: 
Vertex (Plural: vertices)	A corner. The point which two or more sides meet in a shape. Example:  A triangle has three vertices

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	74-78 135-137 173-176 237-241	72-76 152-154 208-214 292-298	60-65 122-125 162-169 200-203	42-47 86-87 120-127 150-153 188-191	41-43 93-95 138-145 209-214	96-103 189-192 250-256 329-338	64-72 141-145 235-239 299-308	83-90 162-165 210-214 282-288	46-49 99-100 165-167 209-213
TG	47-51 97-98 136-140 196-201	94-98 182-186 246-252 337-344	78-80 120-123 146-149 167-168	35-38 70-71 96-100 117-118 151-152	18-20 46 70-73 109-110	103-110 210-214 283-293 384-395	45-52 103-104 190-192 244-149	106-114 213-215 277-287 378-380	30-31 54 85 104-105

UNIT PLAN AND OVERVIEW FOR UNIT 1: 2-D Shapes

LP	Lesson title	Lesson objective Learners will be able to:	Lesson Resources Learners need classwork books, LABs, writing materials, rulers and scissors for all lessons.	Date completed
1	Properties of 2-D shapes (square, rectangle, circle and triangle)	identify squares, rectangles, triangles, circles and quadrilaterals and will know some basic characteristics of each of these 2-D shapes	**Teacher:** 2-D shapes (circle, 2 triangles, square, rectangle, quadrilateral); Flashcards (2-D shapes, circle, triangle, square, rectangle, quadrilateral, triangle A, triangle B, quadrilateral A, quadrilateral B, quadrilateral C), A3 poster with pictures of triangles, A3 poster showing different quadrilaterals, A3 poster showing polygons **Learner:** 2-D shapes (circle, triangle, square, rectangle, triangle A, triangle B, quadrilateral A, quadrilateral B, quadrilateral C), 1 sheet of scrap paper	
2	Polygons and circles	classify various polygons and will be able to identify and name circles, triangles, quadrilaterals (including squares and rectangles), pentagons and hexagons	**Teacher:** 2-D shapes (circle, triangle, square, rectangle, quadrilateral, hexagon, pentagon, 2-D shapes that are not polygons); flashcards (2-D shapes, circle, triangle, square, rectangle, quadrilateral, pentagon, hexagon, polygon, Closed shapes with straight sides are called polygons), A3 poster showing different pentagons, A3 poster showing different hexagons, A3 poster showing different triangles, A3 poster showing different quadrilaterals **Learner:** Cut outs of 2-D shapes, glue	
3	Right angles	describe what a right angle is and will be able to identify right angles in their classroom and in squares and rectangles	**Teacher:** Shapes (triangle, square, pentagon, hexagon); Flash card (right angle) **Learner:** One sheet of scrap paper	
4	Right-angled triangles	make right-angled triangles from a square and a rectangle; identify right- angled triangles; and make figures with right-angled triangles made from squares or rectangles	**Teacher:** Shapes (right-angled triangle, scalene triangle, isosceles, triangle, equilateral triangle), A3 posters of different triangles, Flashcards (right-angled triangle) **Learner:** square, rectangle, right-angle measure made in Lesson 3, coloured pens or crayons, glue	

LP	Lesson title	Lesson objective Learners will be able to:	Lesson Resources Learners need classwork books, LABs, writing materials, rulers and scissors for all lessons.	Date completed
5	Squares, rectangles and right-angled triangles	list characteristics of squares, rectangles and right-angled triangles in terms of the number and length of sides and number of right angle	**Teacher:** Shapes (square, rectangle and right-angled triangle) **Learner:** Shapes (square, rectangle and right-angled triangle), right angle measure made in Lesson 3	
6	Consolidation	revise what a right angle is; and the properties of squares, rectangles and right-angled triangles	**Teacher:** Large tangram **Learner:** Tangram, right angle measure	
7	Draw 2-D shapes on grid paper	draw squares, rectangles and right-angled triangles on grid paper	**Teacher:** A3 sheet of grid paper laminated, non-permanent marker pen **Learner:** Right angle measure	
8	Find squares, rectangles and right-angled triangles	recognise squares, rectangles and right-angled triangles that have been drawn and rotated on grid paper	**Teacher:** A3 sheet of grid paper laminated, non-permanent marker pen **Learner:** Right angle measure, red, blue and green crayons or coloured pencils	
9	Tessellations	pack out 2-D shapes to create composite 2-D shapes and tessellations	**Teacher:** Shapes (square, rectangle and right-angled triangle; 8 copies of Tile 1; A3 Poster: Tessellations **Learner:** Sheet of scrap paper; Shapes (square, rectangle and right-angled triangle; Tile 1; Coloured crayons or pencils	
10	Locate objects on a grid	locate objects, drawings or symbols on an alpha-numeric grid and a map with an alpha-numeric grid	**Teacher:** 8 copies of Tile 1, Flashcards (column, row, grid), A3 poster of an alpha-numeric grid **Learner:** Tile 1, alpha-numeric grid	
11	Draw and use a map	locate places on a map with an alpha-numeric grid	**Teacher:** Alpha-numeric grid laminated, non-permanent marker pen, A3 poster of the park **Learner:** Alpha-numeric grid	
12	Consolidation	revise 2-D shapes, Tessellations and Position and Movement	No resources needed	

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: Properties of 2-D shapes (square, rectangle, circle and triangle)

Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.

CAPS topic: 3.1 Properties of 2-D shapes

Lesson Objective: Learners will be able to identify squares, rectangles, triangles, circles and quadrilaterals and will know some basic properties of each of these 2-D shapes.

Lesson Vocabulary: 2-D, quadrilateral, straight, circle, triangle, square, rectangle, opposite, adjacent, polygon, closed 2-D shape, vertex

Teacher Resources:

- 2-D shapes (circle, triangle, square, rectangle, quadrilateral, triangle A, triangle B, quadrilateral A, quadrilateral B, quadrilateral C);
- Flashcards (2-D shapes, circle, triangle, square, rectangle, quadrilateral),
- A3 poster with pictures of triangles,
- A3 poster showing different quadrilaterals,
- A3 poster showing polygons

Learner Resources: 2-D shapes (circle, triangle, square, rectangle, triangle A, triangle B, quadrilateral A, quadrilateral B, quadrilateral C), scissors, sheet scrap paper, a ruler

Date: Week Day

- Before the lesson cut out the following 2-D shapes from the Teacher's Resource Pack: **circle, triangle, square** and **rectangle**
- Ask the learners to cut out the same shapes from the back of the LAB.

1 MENTAL MATHS (5 MINUTES)

		Answer			Answer
1	2 × 5 =	10	**6**	3 × 5 =	15
2	5 × 5 =	25	**7**	4 × 5 =	20
3	1 × 5 =	5	**8**	0 × 5 =	0
4	8 × 5 =	40	**9**	10 × 5 =	50
5	9 × 5 =	45	**10**	6 × 5 =	30

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- This is the first lesson in the Space and Shape Content Area in Grade 4.
  Revise 2-D shapes from Grade 3 by asking the following questions:
  Say: **Look at your 2-D shapes.**
  Say: **Show me a circle.**
  Say: **Show me a square.**
  Say: **Show me a rectangle.**
  Say: **Show me a triangle.**

- As learners select the correct 2-D shape, put the shape on the board and stick its name underneath.
  Remember to show 2-D shapes in different orientations (for example: upside down or on its side, etc).

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

This is the first lesson of the new term. There is no homework to correct.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (35 MINUTES)

In this lesson, learners revise the properties of some 2-D shapes (square, rectangle, circle and triangle).

Say: **Today we are revising 2-D shapes and learning more about triangles and quadrilaterals.**

Activity 1: Whole class activity and then learners work on their own

Use the square, rectangle, triangle and circle from Teacher's Resource Pack.

- Say: **We are going to start by investigating the sides and angles of a square, a rectangle, a circle and a triangle.**

- The learners must look at their square as you ask the questions.
  Ask: **How many sides in a square?** (4)
  Ask: **Are the sides straight or curved?** (Straight sides)
  Ask: **What can you say about the lengths of the 4 sides in a square?** (All 4 sides are equal.)
  Ask: **How about corners? How many corners are there in a square?** (4)
  Ask: **What do you know about the sizes of the corners in a square?**
  (The size of the corners are all the same.)

- The learners must look at their rectangles as you ask the questions.
  Ask: **How many sides in a rectangle?** (4)
  Ask: **Are the sides straight or curved?** (Straight sides)
  Ask: **What can you say about the lengths of the 4 sides in a square?**
  (The opposite sides of a rectangle are equal in length. The adjacent sides of a rectangle are not equal in length.)
  Ask: **How about corners? How many corners are there in a rectangle?**
  (A rectangle has 4 corners that are the same size as a square. This can be found by putting one corner of square on top of each corner of a rectangle).
- The learners must look at their circles as you ask the questions.

Ask: **Are the sides of a circle straight or curved?** (Curved)
Ask: **Does a circle have corners?** (No)

- The learners must look at their triangles as you ask the questions.
  Ask: **Are the sides of a triangle straight or curved?** (Straight)
  Ask: **How many sides in a triangle?** (3)
  Say: **Tri means three. A triangle has three straight sides.**
  Ask: **How many corners does a triangle have?** (3)

Activity 2: Whole class activity and then learners work in pairs

- Note that learners need a pair of scissors for this activity.
  Use the A3 poster on quadrilaterals from the Teacher's Resource Pack.
  For the discussion after the learners have completed the activity, you will need a large triangle and the 3 labels 'side' and the three labels 'vertex'.

- Say, while counting the number of sides of the big quadrilateral on the poster:
  A quadrilateral is a closed shape with four straight sides.
  Say: **Draw a quadrilaterals in your LAB.**

- Ask: **Is a square a quadrilateral?** (Yes)
  Say: **Give a reason for your answer.** (A square is a closed shape and it has four straight sides)

- Ask: **Is a rectangle a quadrilateral?** (Yes)
  Say: **Give a reason for your answer.** (A rectangle is also a closed shape and it has four straight sides)

- Say: **I think a triangle is a quadrilateral. Am I correct?** (No)
  Say: **Give a reason for your answer.** (A triangle is a closed shape, but it has three straight sides, not four straight sides).

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

- Each pair of learners need a pair of scissors, glue as well as a pencil and ruler.
- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Use the discussion given below to correct Activity 2 with the learners so that they can receive immediate feedback.

1. Each learner should cut out Triangle A and Triangle B in the LAB
2. Take Triangle A.
   a. Draw a line on the triangle to show how you could make **two triangles** from your one big triangle.
   b. Cut along the line to make the two triangles.

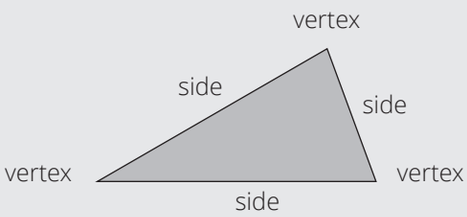
   Glue your two triangles here:

3. Take Triangle B.
   a. Draw a line on the triangle to show how you could make **one triangle and one quadrilateral** from your one big triangle.
   b. Cut along the line to make one triangle and one quadrilateral.

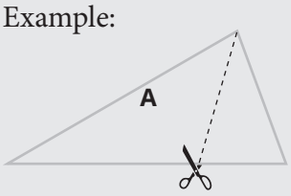
   Glue your triangle and quadrilateral here:

DISCUSSION OF **2.**

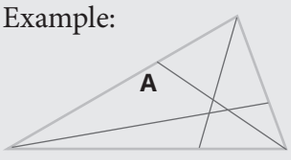
- Put the big triangle on the board
  Place the labels 'vertex' and 'side' on the big triangle and explain the names of the parts of a triangle.



- Ask some learners to explain where they drew a line to cut the big triangle into two smaller triangles.
  Example:



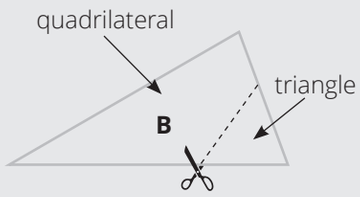
- Help the learners find out that, each time, the line drawn goes through one of the vertices (singular: vertex).
  Example:



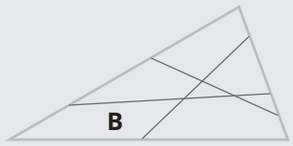
- Ask learners to stick their two triangles in their LAB.

DISCUSSION OF **3.**

- Ask some learners to explain where they drew a line to cut the bigger triangle into a smaller triangle and a quadrilateral.
  Example:



- Help the learners find out that, each time, the lines do not go through any of the vertices. The lines go from one side and finish on another side.
  Example:



- Ask: **How do we know that one of the shapes is a triangle?**
  (It is a closed 2-D shape with 3 sides)
  Ask: **How do we know that the other shape is a quadrilateral?**
  (It is a closed 2-D shape with 4 sides)
- Ask learners to stick their two triangles in their LAB.

Say: **Work with your partner to complete Activity 3 in your LAB.**

- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Use the discussion given below to correct Activity 3 with the learners so that they can receive immediate feedback.

1. Cut out quadrilateral A, quadrilateral B and quadrilateral C in your LAB.
2. Take quadrilateral A.
   a. Draw a line on the quadrilateral to show how you could make **two triangles** from one quadrilateral.
   b. Cut along the line you have drawn to make two triangles.

   Glue your two triangles here

3. Take quadrilateral B
   a. Draw a line on the quadrilateral to show how you could make **two quadrilaterals** from one quadrilateral.
   b. Cut along the line you have drawn.

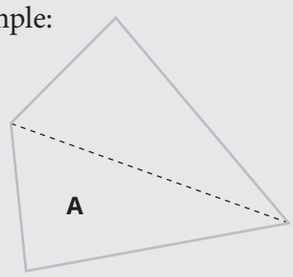
   Glue your two quadrilaterals here

4. Take quadrilateral C
   a. Draw a line on the quadrilateral to show how you could make **a triangle and a quadrilateral** from one quadrilateral.
   b. Cut along the line you have drawn.

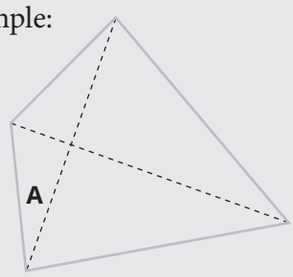
   Glue your triangle and quadrilateral here

DISCUSSION OF **2.**

- Put a big quadrilateral A on the board.
- Ask the learners to explain where they drew the line to cut the quadrilateral into two triangles.
  Example:



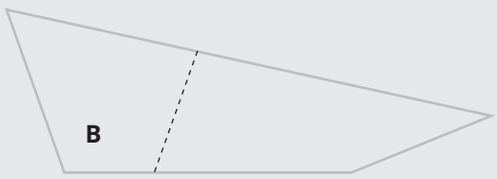
- Help the learners to find out that, each time, the line drawn goes through two of the opposite vertices
  Example:



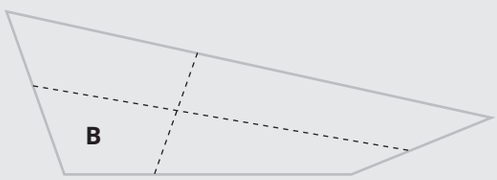
- If the learners have not already done so, ask them to stick their two triangles in their LAB.

DISCUSSION OF **3.**

- Put a big quadrilateral B on the board.
- Ask the learners to explain where they drew the line to cut the quadrilateral into two quadrilaterals.
  Example:



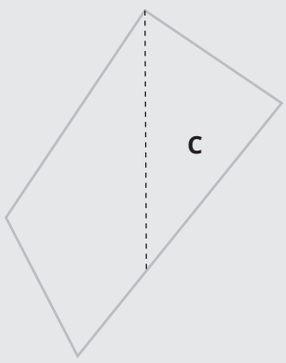
- Help the learners to find out that, each time, the line drawn goes from one side to the opposite side.
  Example:



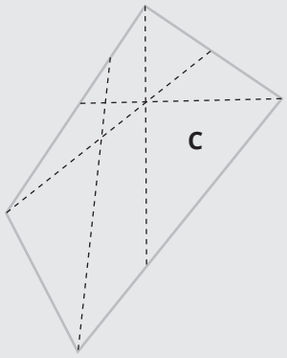
- If the learners have not already done so, ask them to stick their two quadrilaterals in their LAB.

DISCUSSION OF **4.**

- Put a big quadrilateral C on the board.
- Ask the learners to explain where they drew the line to cut the quadrilateral into a triangle and a quadrilateral.
  Example:



- Help the learners to find out that, each time, the line drawn goes from one vertex to the side opposite that vertex.
  Example:



- If the learners have not already done so, ask them to stick the triangle and quadrilateral in their LAB.

5 HOMEWORK ACTIVITY (5 MINUTES)

- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Remind learners that they have learned some characteristics of squares, rectangles, triangles and circles.
- The characteristics they have learned will help them to identify the shapes.

1. I am a closed shape with four straight sides. All my sides are the same length.

What am I? (square)

2. I am a closed shape with a curved side.

What am I? (circle)

3. I am a closed shape with three straight sides.

What am I? (triangle)

4. I am a closed shape with four straight sides.

My opposite sides are the same length.

What am I? (rectangle)

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 revised squares, rectangles, triangles and circles.**
We have also learned that a quadrilateral is a closed shape with four straight sides.

Lesson 2: Polygons and circles

Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.

CAPS topic: 3.1 Properties of 2-D shapes

Lesson Objective: Learners will be able to classify various polygons, and will be able to identify and name circles, triangles, quadrilaterals (including squares and rectangles), pentagons and hexagons.

Lesson Vocabulary: polygon, hexagon, pentagon, triangle

Teacher Resources:
- 2-D shapes (circle, triangle, square, rectangle, quadrilateral, hexagon, pentagon, shapes that are not polygons);
- flashcards (2-D shapes, circle, triangle, square, rectangle, quadrilateral, pentagon, hexagon, polygon, Closed shapes with straight sides are called polygons),
- A3 poster showing different pentagons,
- A3 poster showing different hexagons,
- A3 poster showing different triangles,
- A3 poster showing different quadrilaterals

Learner Resources: Cut-outs of hexagons, pentagons, equilateral triangle, shapse that are not polygons, pair of scissors, glue

Date: Week Day

1 MENTAL MATHS (10 MINUTES)

		Answer			Answer
1	6 × 5 =	30	**6**	5 × 5 =	25
2	10 × 5 =	50	**7**	7 × 5 =	35
3	5 × 3 =	15	**8**	2 × 5 =	10
4	1 × 5 =	5	**9**	4 × 5 =	20
5	9 × 5 =	45	**10**	8 × 5 =	40

2 LINK TO PREVIOUS LESSON (5 MINUTES)

Display the 2-D shapes (circle, square, quadrilateral, rectangle, and triangle) on the chalkboard.
Display the flashcards (circle, square, quadrilateral, rectangle, and triangle) as a list on the chalkboard.

- Say, pointing to the circle flashcard: **Who would like to come to the board and place the label next to the drawing of the circle?**
- Repeat the labelling process with the square, quadrilateral, rectangle and triangle.
- Leave the 2-D shapes and their matching labels on the board.

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 1 are provided 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)

In this lesson, the term polygon is introduced.

For your reference:

- A polygon is a closed 2-D shape with straight sides.
- A regular polygon has all its sides equal in length and all its angles equal in size. A square is a regular polygon.
- An irregular polygon has different length sides.

Learners classify regular and irregular polygons according to the number of sides. Note: learners do not need to know the terms regular and irregular. Remember to show learners examples of both regular and irregular polygons.

In Grade 4, learners need to identify and name squares and rectangles. For other quadrilaterals, learners use the group name, quadrilateral.

Learners should be exposed to a range of different triangles but are not expected to name types of triangles (other than right-angled triangles) in Grade 4.

Say: **Today we are learning about circles and 2-D shapes which are closed and have straight sides.**

Activity 1: Whole class activity and then learners work on their own

- Learners work in their classwork book.

- Stick the following flashcard on the board: **A polygon is a closed shape with straight sides.**
  Read the flash card with learners several times.

- Use the following shapes: quadrilateral, square, rectangle, triangle, circle, hexagon, pentagon, two shapes with curved sides, and one figure that is not closed.

- Say, as you draw on the chalkboard: **Start on a new page in your classwork book. Draw a line to divide the page in two. Your page should look like this:**

Polygons
Not polygons

Say: **Label the top half of the page 'Polygons' and label the bottom half of the page 'Not polygons'.**

- Start by showing the learners a quadrilateral.
Ask: **What do we call this shape?** (Quadrilateral)
Say, pointing to the flashcard as you speak:
A polygon is a closed shape with straight sides.
Ask: **Is this quadrilateral a polygon?** (Yes)
Ask: **Why do you say so?** (It is a closed shape with straight sides).
Ask: **Who will come to the board and place the quadrilateral in the correct place?**
(They should place it in the 'Polygons' half of the page)
Once learners have classified a quadrilateral as a polygon, say: **Stick your quadrilateral in the polygon group. Leave space to add other shapes to the group.**

- Repeat this sequence with the following shapes that are not polygons (either not closed or curved sides or both):

Activity 2: Whole class activity and then learners work in pairs

- Say: **Let's group polygons according to the number of sides they have.**

- Give learners time to sort polygons in groups.
Walk around and assist learners to pay attention to the number of straight sides.
Let some learners come to the board and sort polygons on the board according to the number of straight sides.

- Ask as you point a triangle: **What do we call this polygon?** (Triangle)
Ask: **Why?** (It is closed and has three straight sides.)

- Ask, as you point a quadrilateral: **What do we call this polygon?** (Quadrilateral)
  Ask: **Why?** (It is closed and has four straight sides.)
  Ask: **Do we have other quadrilaterals?** (Yes, we have a square and a rectangle. Both a square and a rectangle have four straight sides.)

- Say as you point a pentagon: This polygon is a pentagon.
  Ask: **How many sides does a pentagon have?** (Five)
  Say, pointing to the flashcard as you speak:
  A *pentagon* is a closed shape with five straight sides.

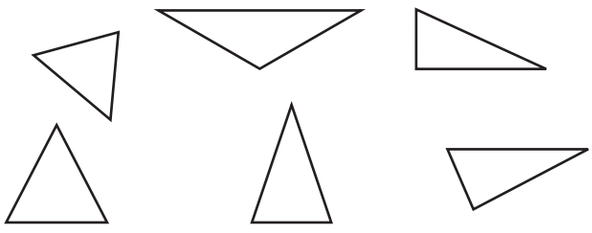
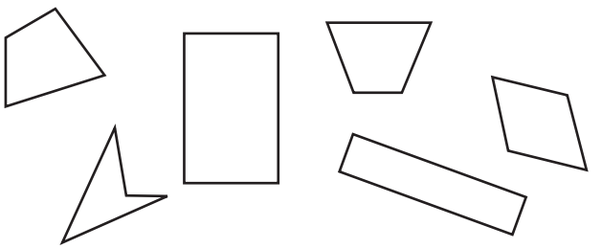
- Say, as you point a hexagon: **This polygon is a hexagon.**
  Ask: **How many sides does a hexagon have?** (Six)
  Say, pointing to the flashcard as you speak:
  A *hexagon* is a closed shape with six straight sides.

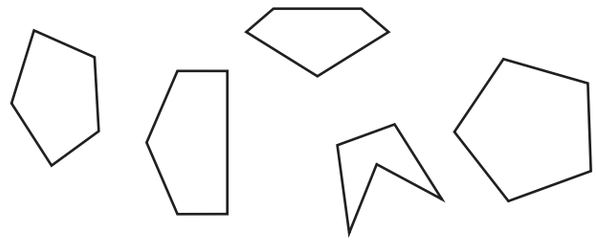
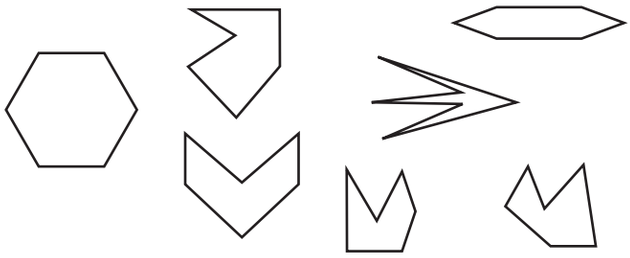
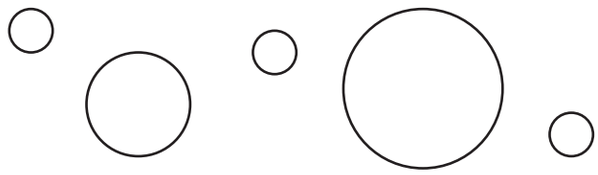
  Say: **Complete Activity 2 in your LAB.**

- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Correct Activity 2 with learners so that they can receive immediate feedback.
  Use the posters of triangles, quadrilaterals, pentagons and hexagons from the Teacher's Resource Pack.

You will need these names to answer the following questions:

Circle **Triangle** **Hexagon** **Quadrilateral** **Pentagon**

1. 	Number of sides (3) Name of the shape (triangle) Are the sides straight or curved? (straight) Is it a polygon? (yes)
2. 	Number of sides (4) Name of the shape (quadrilateral) Are the sides straight or curved? (straight) Is it a polygon? (yes)

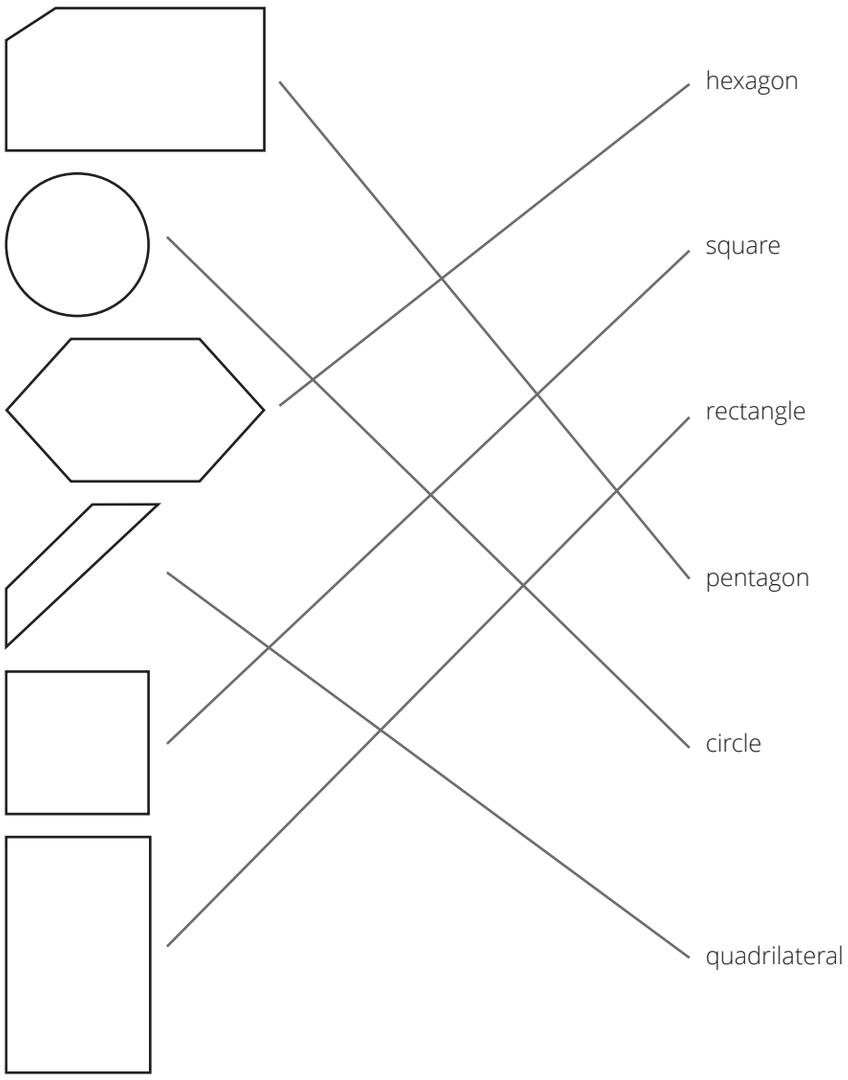
3. 	Number of sides (5) Name of the shape (pentagon) Are the sides straight or curved? (straight) Is it a polygon? (yes)
4. 	Number of sides (6) Name of the shape (hexagon) Are the sides straight or curved? (straight) Is it a polygon? (yes)
5. 	Name of the shape (circle) Are the sides straight or curved? (curved) Is it a polygon? (no)

5 HOMEWORK ACTIVITY (5 MINUTES)

Explain to learners what they need to do for homework.

Read the questions in the LAB with learners. Make sure all the learners understand what to do.

Draw a line to match the 2-D shape with its name.



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 learned that:**

- **2-D shapes which are closed and have straight sides are called polygons**
- **Polygons are grouped according to the number of sides they have:**
  - **a *triangle* is a polygon with three sides**
  - **a *quadrilateral* is a polygon with four sides**
  - **a *square* is a polygon with four sides**
  - **a *rectangle* is a polygon with four sides**
  - **a *pentagon* is a polygon with five sides**
  - **a *hexagon* is a polygon with six sides.**

Lesson 3: Right angles

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 3.1 Properties of 2-D shapes
Lesson Objective: Learners will be able to describe what a right angle is and will be able to identify right angles in their classroom and in squares and rectangles.
Lesson Vocabulary: right angle, square, rectangle, quadrilateral, pentagon, hexagon
Teacher Resources: Shapes (triangle, square, pentagon, hexagon), Flash card (right angle)
Learner Resources: 1 sheet of scrap paper for each learner
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

		Answer			Answer
1	8 × 2 =	16		2 × 2 =	4
2	3 × 2 =	6		6 × 2 =	12
3	5 × 2 =	10		4 × 2 =	8
4	7 × 2 =	14		10 × 2 =	20
5	1 × 2 =	2		9 × 2 =	18

2 LINK TO PREVIOUS LESSON (5 MINUTES)

Learners use the following shapes: triangle, square, pentagon and hexagon.

Revise concepts learned in the previous lesson by asking these questions:

Ask: **What is a polygon?** (Closed 2-D shape with straight sides)
Ask: **Do all polygons have the same number of sides?** (No)
Say: **Show me a pentagon.**
Ask: **Why do you say this is a pentagon?** (It is a polygon with five sides)
Say: **Show me a hexagon.**
Ask: **Why do you say this is a hexagon?** (It is a polygon with six sides)
Say: **Show me a quadrilateral.**
Ask: **Why do you say this is a quadrilateral?** (It is a polygon with four sides)
Say: **Show me a triangle.**
Ask: **Why do you say this is a triangle?** (It is a polygon with three sides)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 2 are provided 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 (35 MINUTES)

In this lesson, learners find out about a right angle. Remember that at this stage learners do not know the concept of an angle being a measure of the amount of turn. In Grade 4, a right angle is simply introduced as a corner of something rectangular like a book, rectangular piece of paper or corner of a door or window. Work with right angles at Grade 4 level should be very practical, with no mention of measurement or 90°.

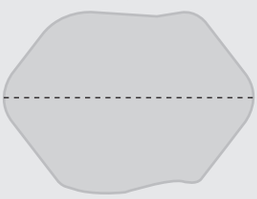
Say: **Today we are learning about right angles and how to find right angles in our classroom.**

Activity 1: Whole class activity and Learners work on their own

- Give each learner a piece of scrap paper (any shape).

- Say: **Let's fold a piece of paper to make a right angle.**
  Note: at this stage of the lesson, learners probably do not know what a right angle is. This is not a problem as the paper folding activity leads them to this concept.

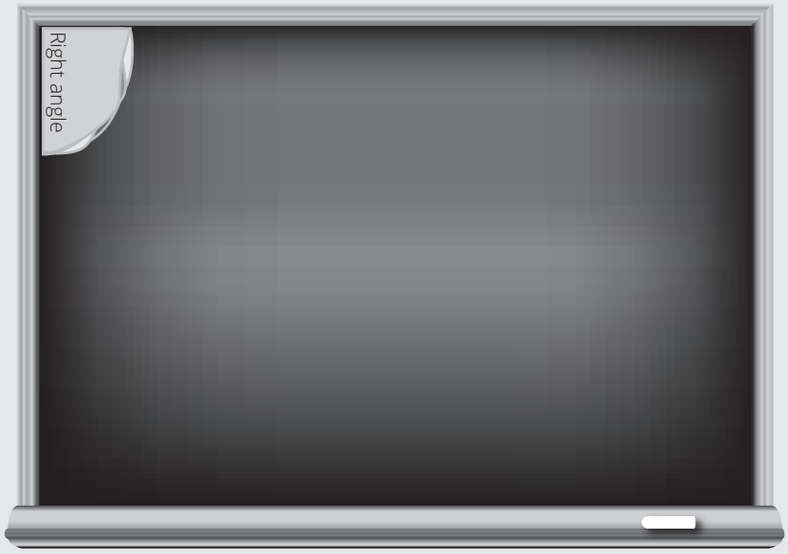
- Demonstrate how learners should fold the paper twice to make a right angle:
  Say: **Fold your piece of paper like this:** (Show first fold)



  Say: **Make a second fold like this:** (Show second fold)

  Say as you point to the corner on the folded paper: **This is a *right angle*.**

- Demonstrate how to use the folded paper to check whether a corner of the chalkboard is a right angle:



- Ask: **Is this corner of the chalkboard a right angle?** (Yes)
- Say: **Use your right-angle measure to check whether the corner of your LAB is a right angle.** (Yes)
- Say: **Look after your right-angle measure. You will use it in other lessons.**

Activity 2: Learners work in pairs

- Note that learners need their folded right angle measures for this activity.

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

- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Demonstrate how to use the right-angle measure to check whether an angle is a right angle.
- Walk around the classroom to support learners as needed.
- Correct Activity 2 with learners so that they can receive immediate feedback.

Work with your partner.

You must stay inside your classroom.

Use the right angle measure you made by folding a piece of paper twice. Check your partner's measurements.

1. Write down where you found six corners that are right angles.
(There are many possible answers. Some possible answers:
- Corner of a book
- Corner of a table or desk
- Corner of a door
- Corner of a window
- Corner of a lunch box
- Corner of a floor tile
- Corner of a ceiling panel
- Corner formed where wall and floor meet
- Corner of a ruler)

2. Write down where you found a corner that is not a right angle.
(Some possible answers:
- Corner of an open book
- Any corner of a triangle that does not a contain a right angle)

Activity 3: Learners work with their partner

- Note that learners need their folded right angle measures for this activity.

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

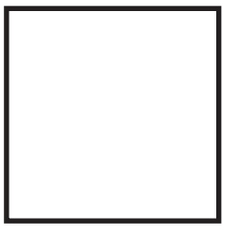
- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Discuss and correct Activity 3 with learners so that they can receive immediate feedback.

Work with your partner.

Use the right angle measure you made by folding a piece of paper twice.

1. Look at this polygon.

Read the information about the polygon and then answer the questions.



Adjacent sides are the same length.

Opposite sides are the same length.

a. Use your right-angle measure. Measure all the corners in the polygon.
b. Draw a circle around the correct number to make the statement true.
In a square, there are 0 / 2 /④ corners that are right angles.
c. What is the name of this polygon? (Square)

2. Look at the polygon.

Read the information about the polygon and then answer the questions.

Opposite sides are the same length.

a. Use your right-angle measure. Measure all the corners in the polygon.
b. Draw a circle around the correct number to make the statement true.
In a rectangle, there are 0 / 2 /④ corners that are right angles.
c. What is the name of this polygon? (Rectangle)

5 HOMEWORK ACTIVITY (5 MINUTES)

Explain to learners what they need to do for homework.
Read the questions in the LAB with learners. Make sure all the learners understand what to do.
Tell learners that they will do the same activity as they did in the classroom, but this time they will do it at home. Encourage learners to look for some right angles that they did not find in class.
Note that learners need their folded right angle measures for this homework activity.

Use the right angle measure you made by folding a piece of paper twice.

1. Write down where you found six corners in your home that are right angles.
(There are many possible answers. Some possible answers:
- Corner of a towel
- Corner of a table or desk
- Corner of a door
- Corner of a window
- Corner of a ceiling panel
- Corner of a fridge
- Corner formed where the wall and the floor meet
- Corner of a television
- Corner of a tissue box.
- Corner of a small plastic bag)

2. Bring one example of something that has right angles to class, if possible, to show to your friends.

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 learned that the corner formed when we fold a piece of paper is called a right angle.**

We also learned that:
- **A square has four right angles**
- **A rectangle has four right angles.**

Lesson 4: Right-angled triangles

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 3.1 Properties of 2-D shapes
Lesson Objective: Learners will be able to make right-angled triangles from a square and a rectangle; identify right- angled triangles; and make figures with right-angled triangles made from squares or rectangles.
Lesson Vocabulary: right-angled triangle, right angle, square, rectangle, triangle, identical
Teacher Resources: Shapes (right-angled triangles, scalene triangle, isosceles triangle, equilateral triangle, rectangle, square); A3 posters of different triangles; Flashcard (Right-angled triangle)
Learner Resources: square, rectangle, right-angle measure made in Lesson 3, coloured pens or crayons, scissors, glue, a ruler
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

		Answer			Answer
1	5 × 2 =	10	**6**	4 × 2 =	8
2	0 × 2 =	0	**7**	8 × 2 =	16
3	2 × 2 =	4	**8**	10 × 2 =	20
4	7 × 2 =	14	**9**	9 × 2 =	18
5	3 × 2 =	6	**10**	6 × 2 =	12

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Revise the concept of a right angle by asking the following questions:
  Ask: **Who would like to use their right-angle measure to show the class a right angle in this classroom?**
  (Some possible answers: Corner of a book, table, desk, window, ceiling panel, lunch box or any other box, floor tile, where the wall and the floor meet)

- Repeat this question two or three more times to give learners the opportunity to consolidate the concept of a right angle.

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 3 are provided in Lesson 3.
Use this time to share learners' findings about right angles at home or in their surroundings.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (35 MINUTES)

In this lesson, learners consolidate the concept of a right angle:
- by making right-angled triangles from a square and a rectangle.
- by identifying right-angled triangles among a mixed group of triangles.
- by using right-angled triangles to make other polygons.

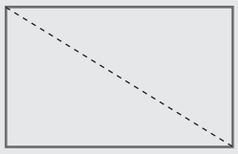
Say: **Today we are learning about right-angled triangles.**

Activity 1: Whole class activity and Learners work on their own

- Use a rectangle and a square from the Teacher's Resource Pack.
- Learners need to cut out one of the rectangles and one of the squares from the LAB.

- Ask, as you stick the big rectangle on the board: **What do we call this *polygon*?** (Rectangle)
- Ask: **How do we know that it is a *rectangle*?** (Two pairs of opposite sides equal in length, four right angles)

- Say: **Draw a diagonal on your rectangle like this and cut along the diagonal.**

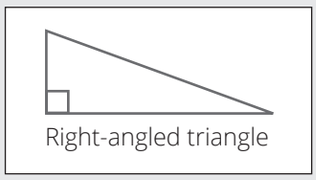


- Ask: **What two shapes do we now have?** (2 triangles)
- Ask: **Can you place one of the shapes exactly on top of the other shape?** (Yes)
  Say: **We say that these two triangles are identical. They are exactly the same.**

- Say: **A triangle has 3 sides and 3 corners.**
- Say: **Use your right-angle measure to measure the size of the biggest corner of the triangle.**
  What angle is it? (It is a right angle)
- Ask: **Do both triangles have a corner that is a right angle?** (Yes)
- Say: **Show me the *right angle* in each *triangle*.** (

)

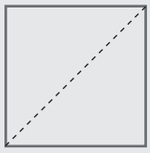
- Say: **A triangle with one right angle is called a *right-angled triangle*.**
  Display the right-angled triangle and flashcard on the chalkboard like this:



Say: **We draw a small box on the corner to show that the corner is a right-angle.**

- Tell the learners to write an R (for rectangle) on each triangle and to keep them as they are going to use them in Activity 3.

- Say: **Fold your square in half along the diagonal and cut along the diagonal.**



- Ask: **What did you have now?** (2 triangles, 2 right-angled triangles)
  Ask: **Why do you know they are the right-angled triangles?**
  (Because our right-angle measure tells us that the biggest corner of each triangle is a right-angle.)
  Say: **Let's draw a small box on the right-angle corner of each right-angled triangle to show that the corner is a right-angle.**

- Tell the learners to write an S (for square) on each triangle and to keep them as they are going to use them in Activity 3.

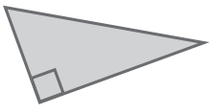
Activity 2: Learners work in pairs

- Note that learners need their folded right angle measures and a crayon or pencil for this activity.

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

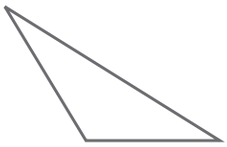
- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Show learners how we show a right angle by drawing a small box in the corner that is a right angle.
- Walk around the classroom to support learners as needed.
- Discuss and correct Activity 2 with learners so that they can receive immediate feedback.

Use your right-angle measure to check which angles are right angles.

1. 

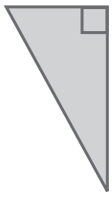
Is this triangle a right-angled triangle? (Yes)

If it is a right-angled triangle, colour it in and mark the right-angle with a small square.

2. 

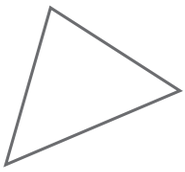
Is this triangle a right-angled triangle? (No)

If it is a right-angled triangle, colour it in and mark the right-angle with a small square.

3. 

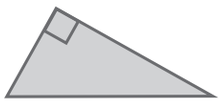
Is this triangle a right-angled triangle? (Yes)

If it is a right-angled triangle, colour it in and mark the right-angle with a small square.

4. 

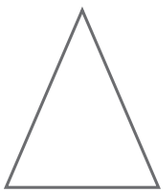
Is this triangle a right-angled triangle? (No)

If it is a right-angled triangle, colour it in and mark the right-angle with a small square.

5. 

Is this triangle a right-angled triangle? (Yes)

If it is a right-angled triangle, colour it in and mark the right-angle with a small square.

6. 

Is this triangle a right-angled triangle? (No)

If it is a right-angled triangle, colour it in and mark the right-angle with a small square.

Activity 3: Learners work on their own

- The learners need the four right-angled triangles from Activity 1.
- Learners need glue and scissors.

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

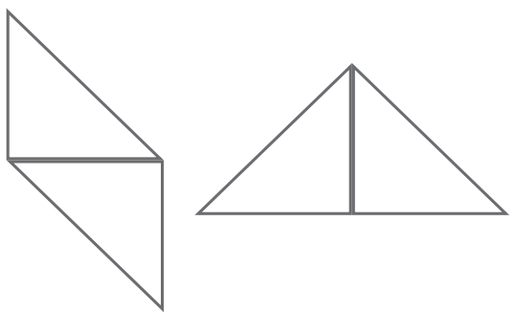
- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Discuss and correct Activity 3 with learners so that they can receive immediate feedback.

1. Use the two identical right-angled triangles marked with an S.

You made them when you cut the square in half along the diagonal.

Make other shapes with these right-angled triangles:

Draw a picture here to show the new shapes.

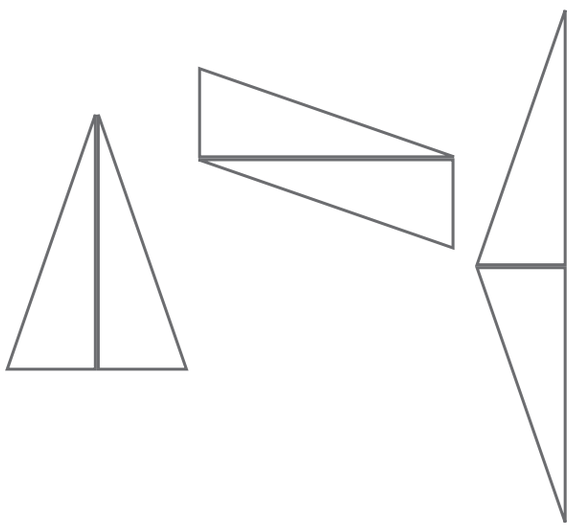


2. Use the two identical right-angled triangles marked with an R.

You made them when you cut the rectangle in half along the diagonal.

Make other shapes with these right-angled triangles.

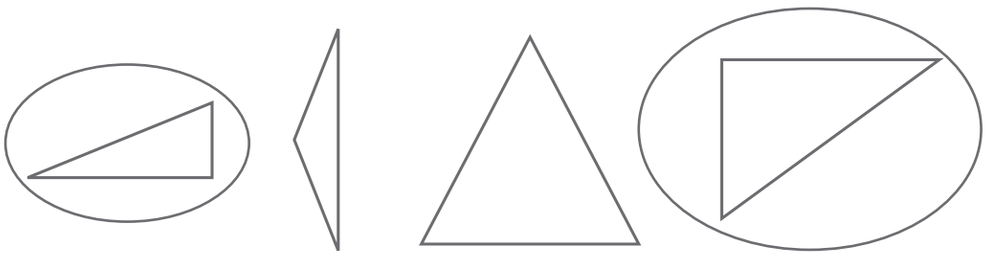
Draw pictures here to show how you made the new shapes.



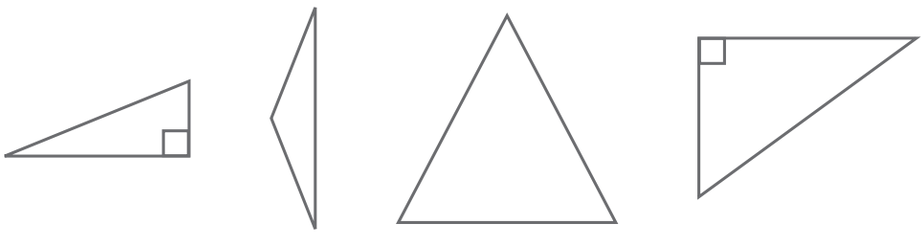
5 HOMEWORK ACTIVITY (5 MINUTES)

- 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 Draw a circle around each right-angled triangle.



2 Draw a small square in each right-angled triangle to show where the right angle is.



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 learned that a triangle with one right angle is called a *right-angled triangle*.**

Lesson 5: Squares, rectangles and right-angled triangles

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 3.1 Properties of 2-D shapes
Lesson Objective: Learners will be able to list characteristics of squares, rectangles and right-angled triangles in terms of the number and length of sides and number of right angles.
Lesson Vocabulary: characteristic, square, rectangle, right-angled triangle, table, record
Teacher Resources: Shapes (square, rectangle, right-angled triangle)
Learner Resources: Shapes (square, rectangle and right-angled triangle), right angle measure made in Lesson 3, scissors, ruler
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

		Answer			Answer
1	5 × 3 =	15	**6**	10 × 3 =	30
2	2 × 3 =	6	**7**	4 × 3 =	12
3	8 × 3 =	24	**8**	7 × 3 =	21
4	3 × 3 =	9	**9**	9 × 3 =	27
5	6 × 3 =	18	**10**	0 × 3 =	0

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- You need a square, rectangle and right-angled triangle from the Teacher's Resource Pack.
- Revise concepts from previous lessons by asking the following questions:
  Ask, while pointing to one corner in a square:
  What do we call the angle in the corner of a square? (Right angle)
  Ask, while pointing to one corner in a rectangle:
  What do we call the angle in the corner of a rectangle? (Right angle)
  Ask: **How many right angles in a square?** (Four)
  Ask, while holding up a right-angled triangle:
  What do we call a triangle with a right angle? (Right-angled triangle)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 4 are provided 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 (35 MINUTES)

In this lesson, learners investigate squares, rectangles and right-angled triangles in order to consolidate their understanding of the characteristics of these three polygons. It is important for learners to investigate these polygons so that they can discover the characteristics themselves, rather than simply being told the characteristics.

Say: **Today we are learning about the *characteristics* of squares, rectangles and right-angled triangles. This means that we are going to look at the number of sides, lengths of the sides and the sizes of the angles.**

Activity 1: Whole class activity and Learners work in pairs

- Draw a table like this on the board before the lesson begins.
  The learners have a table like this in their LAB.

Name of the shape	Picture	Number of sides	Length of sides	Number of right angles
Square				
Rectangle				
Right-angled triangle				

- Ask: **What can we do when we want to know the number of sides in a polygon?**
  (We can count the number of sides)

- Stick your square on the board.
  Ask: **How many sides does it have?** (4)
  Write the 4 in the correct place on the table.
  Ask: **How many right angles in the square?** (4). Use your right-angle measure to show that all four angles in a square are right angled.
  Write the 4 in the correct place on the table.

Name of the shape	Picture	Number of sides	Length of sides	Number of right angles
Square		4		4
Rectangle				
Right-angled triangle				

Activity 2: Learners work in pairs

- The learners need their right-angle measure and a ruler.

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

- Walk around the classroom to support learners as needed.
- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Correct Activity 2 with learners so that they can receive immediate feedback.

1. Find a square, rectangle and right-angled triangle in your LAB and cut them out.

2. Study your shapes and answer the questions:
   a. How many sides in a rectangle? (4)
   b. How many sides in a right-angled triangle? (3)
   Write the number of sides in a rectangle and in a right-angled triangle on the table.

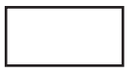
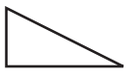
3. Fold your shapes to find out which sides are equal in length.
   a. In a square, which sides are equal lengths? (All)
   b. In a rectangle, which sides are equal lengths? (The opposite sides)
   c. In a right-angled triangle, which sides are equal lengths? (None)

4. Use your right-angle measure and the polygons you have cut out.
   a. How many right angles in a square? (4)
   b. How many right angles in a rectangle? (4)
   c. How many right angles in a right-angled triangle? (1)
   Write the number of right-angles of all three shapes on the table.

5. **a.** Draw a picture of the square in the correct space on the table.

b. Use a ruler to measure the length of the sides of the square and write the length in the correct space on the table.

c. Fill in the missing information for the rectangle and the right-angled triangle.

Name of the shape	**Picture**	**Number of sides**	**Length of sides** (these measurements will differ from learner to learner)	**Number of right angles**
Square	()	4	(xxx cm)	4
Rectangle	()	(4)	(one pair is yyy cm and another pair is zzz cm.)	(4)
Right-angled triangle	()	(3)	(……cm, ……cm, ……cm)	**(1)**

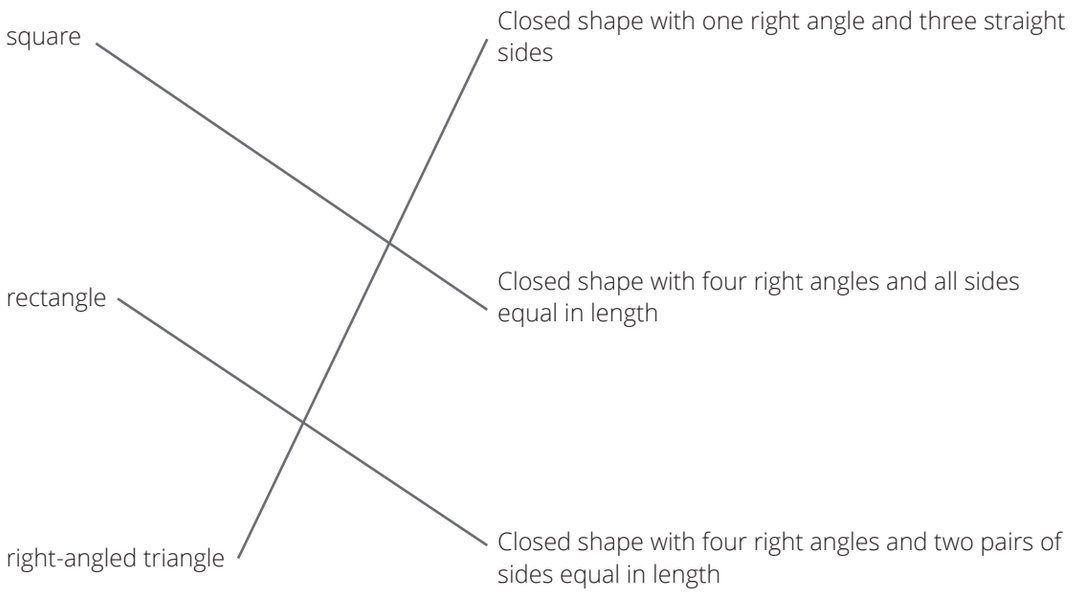
* It is possible to have two sides equal in length in a right-angled triangle, but in the right-angled triangle the learners are using, all three sides are a different length.

5 HOMEWORK ACTIVITY (5 MINUTES)

Explain to learners what they need to do for homework.

Read the questions in the LAB with learners. Make sure all the learners understand what to do.

Draw a line to match thename of the polygon with the description.



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 learned that:**

- **Squares and rectangles have four right angles**
- **In a square, all sides are the same length**
- **In a rectangle, there are two pairs of sides that are the same length**
- **A right-angled triangle has three sides and one right angle.**

Lesson 6: Consolidation

Teacher's notes
This lesson allows for consolidation of the content covered in the previous five lessons.
CAPS topics: 3.1 Properties of 2-D shapes
Lesson Objective: Learners will revise what a right angle is and the properties of squares, rectangles and right-angled triangles.
Lesson Vocabulary: tangram, square, rectangle, quadrilateral, right angle, right-angled triangle
Teacher Resources: Large tangram
Learner Resources: Tangram, right angle measure, pair of scissors
Date: Week Day

1 NOTES FOR THE TEACHER RELATING TO THE WORK DONE THUS FAR

The main topics in this unit so far were the characteristics of squares, rectangles and right-angled triangle and the definition of a right angle as a corner in a square or rectangle.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WORK DONE THUS FAR

- Learners often struggle with the concept of an angle being the 'amount of turn'. For this reason, we do not refer to measuring angles other than by using the right angle measure made by folding a piece of paper twice. While this is not an accurate measure, it is sufficient at Grade 4 level where learners simply define a right angle as the 'corner of a rectangle or square. At this stage there is no mention of the actual size, in degrees, of a right angle.

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

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

4 CLASSWORK

Today we are going over what we learned this term.
We will revise the characteristics of squares, rectangles and right-angled triangles.

- You could use this time for learners to complete classwork or homework activities as necessary.
- You could use the Additional Activities from textbooks that you have or use the Consolidation Activity provided.

Additional activities for consolidation

Refer to the table. Select additional activities from the textbook/s you have. Use the answers given in the Teacher's Guide to correct the work.

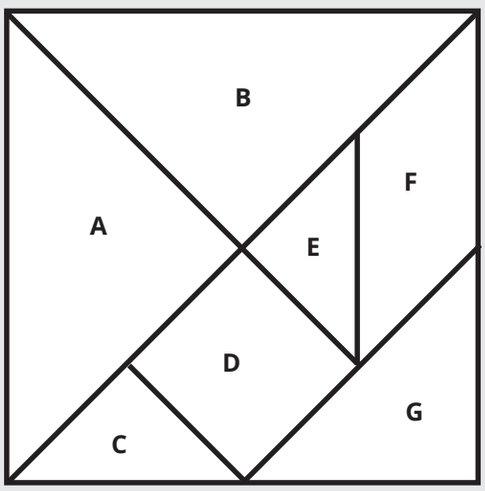
	Fabulous	Oxford Headstart	Oxford Successful	Platinum	Premier	Sasol Inzalo	Solutions for All	Study & Master	Viva
LB	74-78	72-76	60-65	42-47	41-43	96-103	64-72	83-90	46-49
	135-137	152-154	122-125	86-87	93-95	189-192	141-145	162-165	99-100
	173-176	208-214	162-169	120-127	138-145	250-256	235-239	210-214	165-167
	237-241	292-298	200-203	150-153	209-214	329-338	299-308	282-288	209-213
				188-191					
TG	47-51	94-98	78-80	35-38	18-20	103-110	45-52	106-114	30-31
	97-98	182-186	120-123	70-71	46	210-214	103-104	213-215	54
	136-140	246-252	146-149	96-100	70-73	283-293	190-192	277-287	85
	196-201	337-344	167-168	117-118	109-110	384-395	244-149	378-380	104-105
				151-152					

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

Read the questions in the LAB with learners. Make sure all the learners understand what to do.

Consolidation Activity: Learners work with a partner

A *tangram* is a puzzle made up of seven shapes that can be arranged to form many new shapes. A tangram is made up of triangles, a square, and a quadrilateral. Tangrams were first used in China more than 200 years ago. A tangram looks like this:

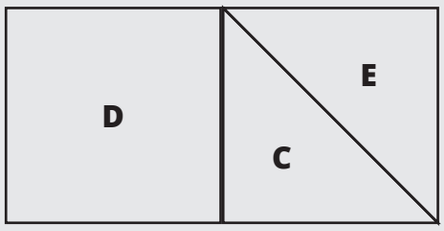


1 Which tangram pieces are right-angled triangles? (A, B, C, E, G)
2 What shape is D? (a square)
3 What shape is F? (a quadrilateral)

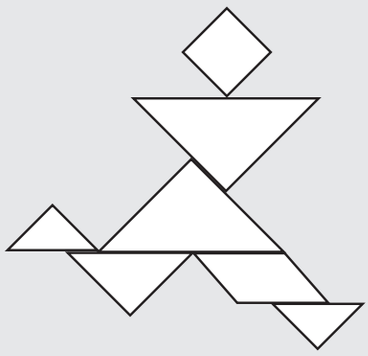
4 Are there any rectangles in the tangram? (No)

5 Cut out the tangram that is at the back of your LAB.
Have fun! Build a rectangle using some of the pieces of the tangram.

A possible answer:



6 Now use your tangram to build this person. You need to use all seven tangram pieces.



7 Build other figures if you have time.

5 REFLECTION AND SUMMARY OF LESSON

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

Say: **Today we have revised the characteristics of quadrilaterals, squares, rectangles and right-angled triangles.**

Lesson 7: Draw 2-D shapes on grid paper

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 3.1 Properties of 2-D shapes
Lesson Objective: Learners will be able to draw squares, rectangles and right-angled triangles on grid paper.
Lesson Vocabulary: at least, grid, orientation
Teacher Resources: A3 sheet of grid paper laminated, non-permanent marker pen
Learner Resources: right angle measure, ruler
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

		Answer			Answer
1	4 × 3 =	12	**6**	2 × 3 =	6
2	6 × 3 =	18	**7**	9 × 3 =	27
3	1 × 3 =	3	**8**	3 × 3 =	9
4	8 × 3 =	24	**9**	7 × 3 =	21
5	10 × 3 =	30	**10**	5 × 3 =	15

2 LINK TO PREVIOUS LESSON (5 MINUTES)

Revise concepts learnt in previous lesson by asking these questions:

- Say: **Name two polygons that contain four right angles.** (Square and rectangle)
- Say: **Name three polygons that contain at least one right angle.**
  (Square, rectangle and right-angled triangle)
  Note: there are many other polygons that could contain at least one right angle, but Grade 4 learners are unlikely to know this)
- Say: **Show me a right angle on the outside of your classwork book.**
  (Any corner of the classwork book is a right angle)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

Lesson 6 was a consolidation lesson and no homework was given.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

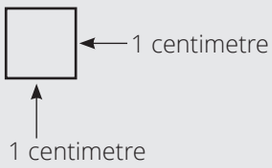
In this lesson, learners consolidate concepts related to squares, rectangles and right-angled triangles by drawing these three polygons on grid paper.

Say: **Today we will learn to draw squares, rectangles and right-angled triangles on grid paper.**

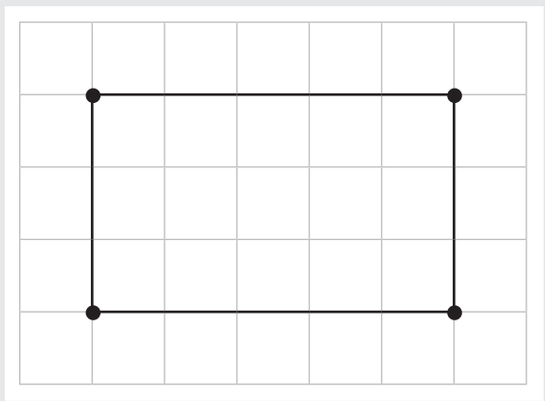
Activity 1: Whole class activity and Learners work on their own

- You will need the A3 sheet of grid paper and a non-permanent marker pen.

- Say, holding up the grid paper:
  A grid is a pattern of straight lines that cross over each other to form blocks.
  Say: **Look at the grid in your LAB.** Ask: **What shape is each block?** (Square)
  Ask: **Why do you say the blocks are square?**
  (All sides equal length. Corners are right angles).
- Say, drawing on the board: **The squares in your grid are one centimetre across and one centimetre down. The squares in my grid are bigger than one centimetre so that you can see the diagrams clearly.**

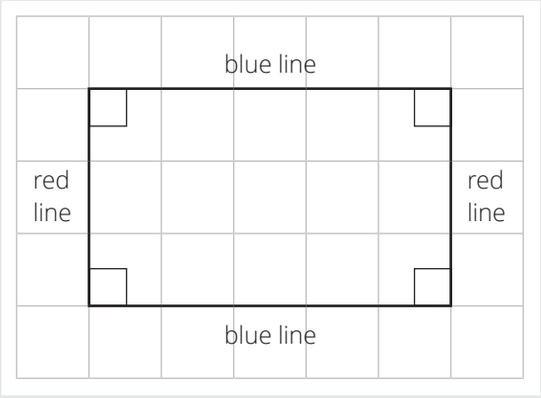


- Say: **Watch as I draw a 2-D shape on my grid.**
  Draw a rectangle on your grid using a ruler. Note: First mark the 4 corners and connect all 4 corners as 5 blocks across and 3 blocks down.
  Do not mention the name of the 2-D shape or the measurements at this stage.



- Say: **Draw the same 2-D shape on your grid.**
  Say: **Count the blocks along each side of your grid.**
  Colour the shorter pair of sides that are the same length in red.
  Colour the longer pair of sides that are the same length in blue.

- Say: **Use your right-angle measure. Draw a small box in all the corners that are right angles.**
  The rectangles should look like this:



- Ask: **What 2-D shape have you drawn on the grid paper?** (Rectangle)
- Ask: **Why do you say this is a rectangle?**
  (Closed shape, four sides, two pairs of opposite sides that are equal, right angles in each corner)
- Ask, pointing at the longer side of the rectangle:
  How long is this side in blue that you have drawn? (Five centimetres)
- Ask: **How do you know that the length of the side in five centimetres?**
  (Each square is 1 centimetre long and there are five squares along that side)
- Ask, pointing at the shorter side of the rectangle:
  How long is this side in red of the rectangle you have drawn? (Three centimetres)

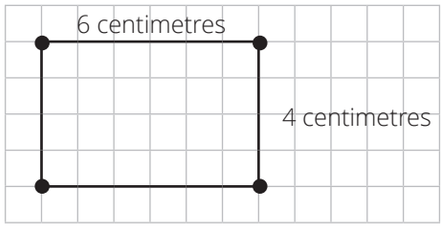
Activity 2: Learners work in pairs

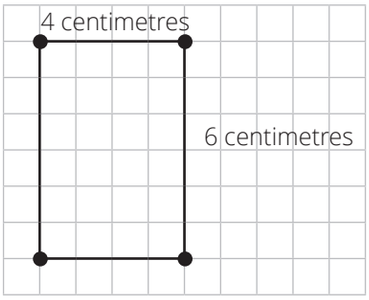
- Say: **Complete Activity 2 in your LAB.**
- Walk around the classroom to support learners as needed.
- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Correct Activity 2 with learners so that they can receive immediate feedback.

POSSIBLE ANSWERS

1. **a.** Draw a rectangle with sides of 6 centimetres and 4 centimetres.

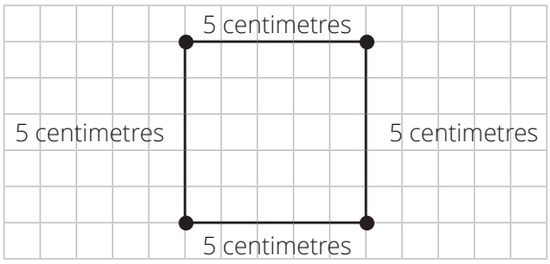
b. Write the length of the sides on your rectangle.





2. **a.** Draw a square with one side of 5 centimetres.

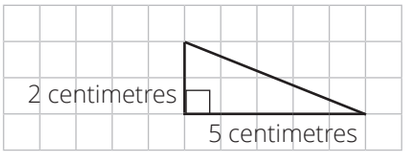
b. Write the length of the sides on your square.



3. **a.** Draw a right-angled triangle with one shorter side that is 2 centimetres and the other shorter side that is 5 centimetres.

b. Draw a small box in the corner to show the right angle.

POSSIBLE ANSWERS



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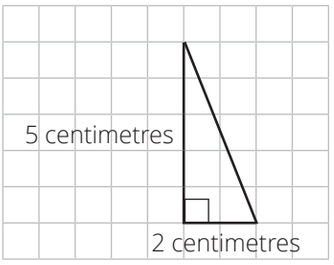

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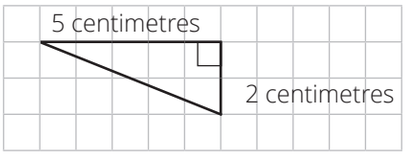

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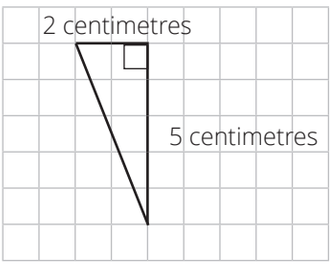


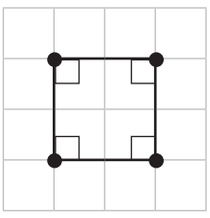
4. **a.** Draw a square. You can choose the length of the sides, but make sure it fits on the grid.

b. Label the length of each side.

c. Draw a small box in each corner to show the right angles.

ANSWERS

Answers will vary. Check that all four sides are the same length and that right angles are indicated in all four corners.



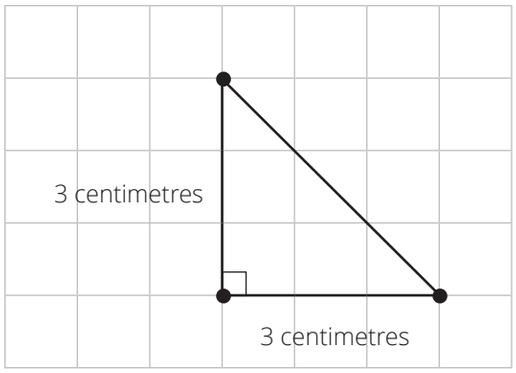
5 HOMEWORK ACTIVITY (5 MINUTES)

Explain to learners what they need to do for homework.
Read the questions in the LAB with learners. Make sure all the learners understand what to do.

The sides of each square on the grid are 1 cm long.

1. **a.** Draw a right-angled triangle on the grid with the two short sides each 3 centimetres long.

b. Draw a small box in the corner to show the corner that is a right angle.

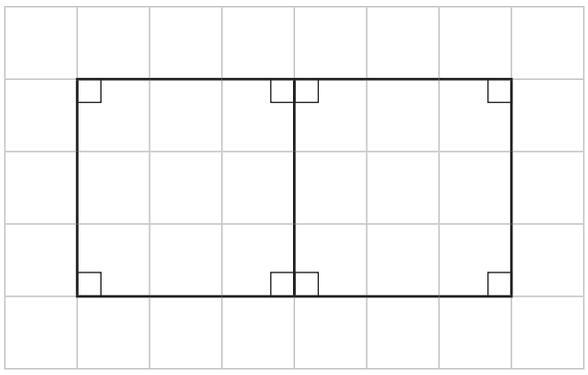


2. **a.** Draw a square on the grid with one side of 3 centimetres.

b. Draw another square on the grid with one side of 3 centimetres. The two squares must be joined.

c. Draw a small box in the corners that are right angles.

d. What is the name of the polygon you have drawn by joining two squares? (rectangle)



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 learned how to draw squares, rectangles and right-angled triangles on grid paper. We also drew a small box to show the right angle in a square, rectangle and right-angled triangle.**

Lesson 8: Find squares, rectangles and right-angled triangles

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 3.1 Properties of 2-D shapes
Lesson Objective: Learners will be able to recognise squares, rectangles and right-angled triangles that have been drawn and rotated on grid paper.
Lesson Vocabulary: at least, grid, orientation
Teacher Resources: A3 sheet of grid paper, non-permanent marker pen
Learner Resources: Right angle measure, red, blue and green crayons or coloured pencils
Date: Week Day

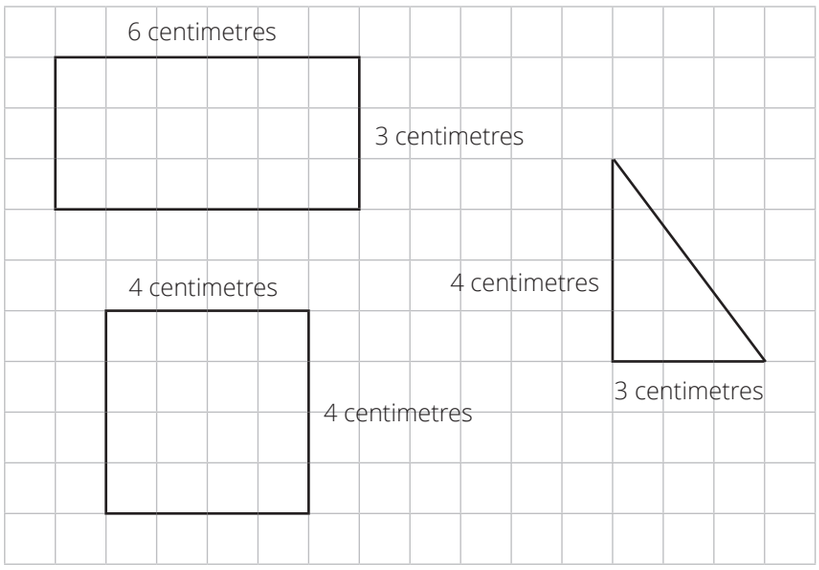
1 MENTAL MATHS (5 MINUTES)

		Answer			Answer
1	0 × 3 =	0	**6**	6 × 3 =	18
2	4 × 3 =	12	**7**	8 × 3 =	24
3	7 × 3 =	21	**8**	2 × 3 =	6
4	9 × 3 =	27	**9**	10 × 3 =	30
5	1 × 3 =	3	**10**	3 × 3 =	9

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Revise drawing squares, rectangles and right-angled triangles by asking the learners to draw three polygons on the grid paper in the LAB.
- List the following polygons on the board. Learners must plan where to draw each polygon so that they all fit on the grid paper.
- Say: **Draw the following on your grid paper:**
  - Rectangle with sides of 6 centimetres and 3 centimetres
  - Square with one side that is 4 centimetres long
  - Right-angled triangle with a side of 4 centimetres and a side of 3 centimetres making the right angle.

- Say to the learners: **Swap with your partner. Check your partner's drawings.**
  (Position and orientation of drawings could vary, but shapes and measurements must be according to instructions.)
  The following diagram is an example of what the learners could have drawn.



3 CORRECT HOMEWORK (5 MINUTES)

The answers to the Homework Activity for Lesson 7 are provided in Lesson 7.
Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

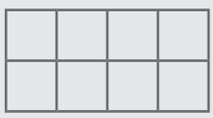
4 LESSON CONTENT – CONCEPT DEVELOPMENT (35 MINUTES)

In this lesson, learners consolidate concepts related to squares, rectangles and right-angled triangles by identifying polygons drawn in different orientations on grid paper.

Say: **Today we are going to find draw and recognise squares, rectangles and right-angled triangles drawn on grid paper.**

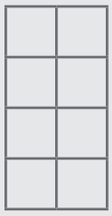
Activity 1: Whole class activity and then learners work on their own

- Say: **Work on the grid paper in your LAB.**
  Draw a 4 cm × 2 cm rectangle on the grid from the Teacher's Resource Pack.



  Say: **Draw a rectangle like this on your grid paper.**

- Say: **Draw another rectangle with the same measurements. The second rectangle must look like this:**



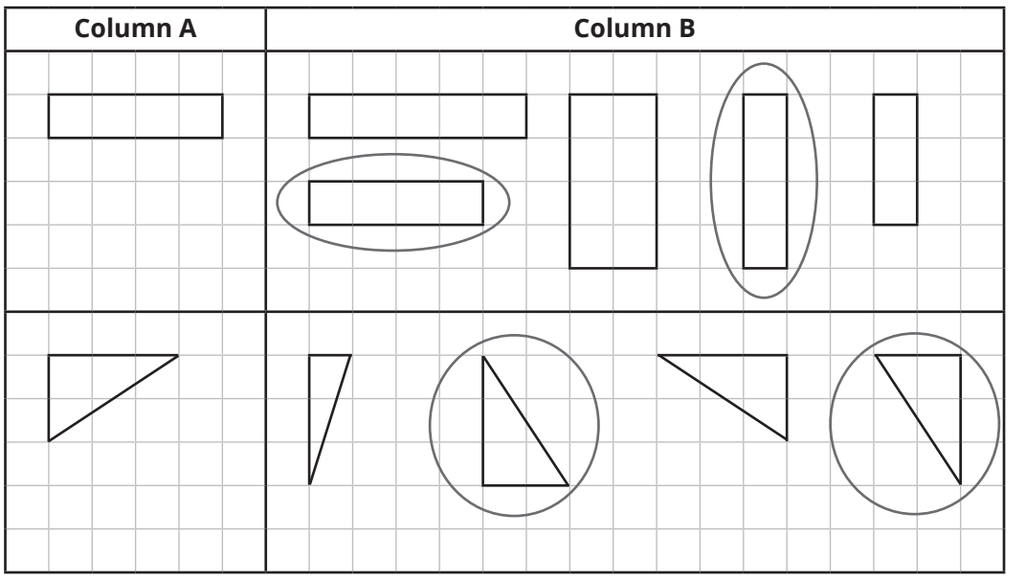
- Ask: **What is *the same* about these two rectangles?**
  (They have the same measurements)
- Ask: **What is *different* about these two rectangles?**
  (They are in different orientations/ the second rectangle has been turned)

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

- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Correct Activity 1 with learners so that they can receive immediate feedback.

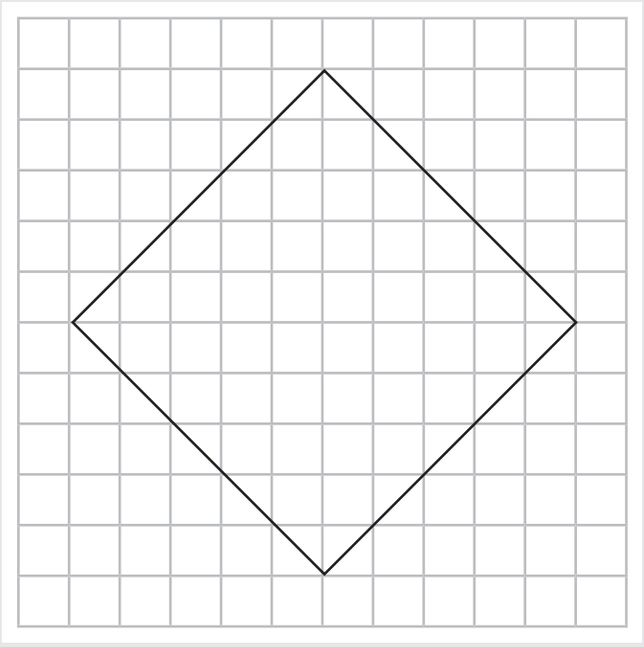
Draw a circle around the polygons in Column B that are the same size as the polygon in Column A.

To be the same size, the sides must be the same length and the angles must be equal.



Activity 2: Whole class activity and then learners work in pairs

- Draw this quadrilateral on your big grid paper. The learners have this quadrilateral in their LAB.



Ask: **What do you think this polygon is?** (a quadrilateral, a square)
Ask: **Why do you think it is the shape you chose?**
Allow the learners time to discuss this with their partner. They can use their right-angle measure and a ruler to check.

- Ask: **How many sides does it have?** (It has 4 straight sides, so it is a quadrilateral.)
  Ask: **Are the sides equal in length?** (Yes, they are.)
  Ask: **Are the corners of the quadrilateral right angles?** (Yes, they are.)
  Ask: **What type of quadrilateral is this shape?**
  After checking the corners and the length of sides, learners recognise this is a square. Some pairs might rotate the quadrilateral and say it is a square.

WHAT THE TEACHER MUST KNOW. There is no need to tell learners.

- We know that the shape has 4 equal sides, because all the squares are the same size and each diagonal line goes through the same number of squares.
- When we fold grid paper in half along the diagonal line, the two lines will go through the same number of squares and so will be the same length.
- If we fold the square paper in half along the vertical diagonal and the horizontal diagonal, the two diagonals will be the same length.
- The square has 4 corners. The angle of a corner consists of two 45° corners of a right-angled isosceles triangles, so the angle of a corner of this quadrilateral is 90°.
- Therefore, we can conclude that it is a square that has 4 equal sides and 4 right angles.

Activity 3: Learners work on their own

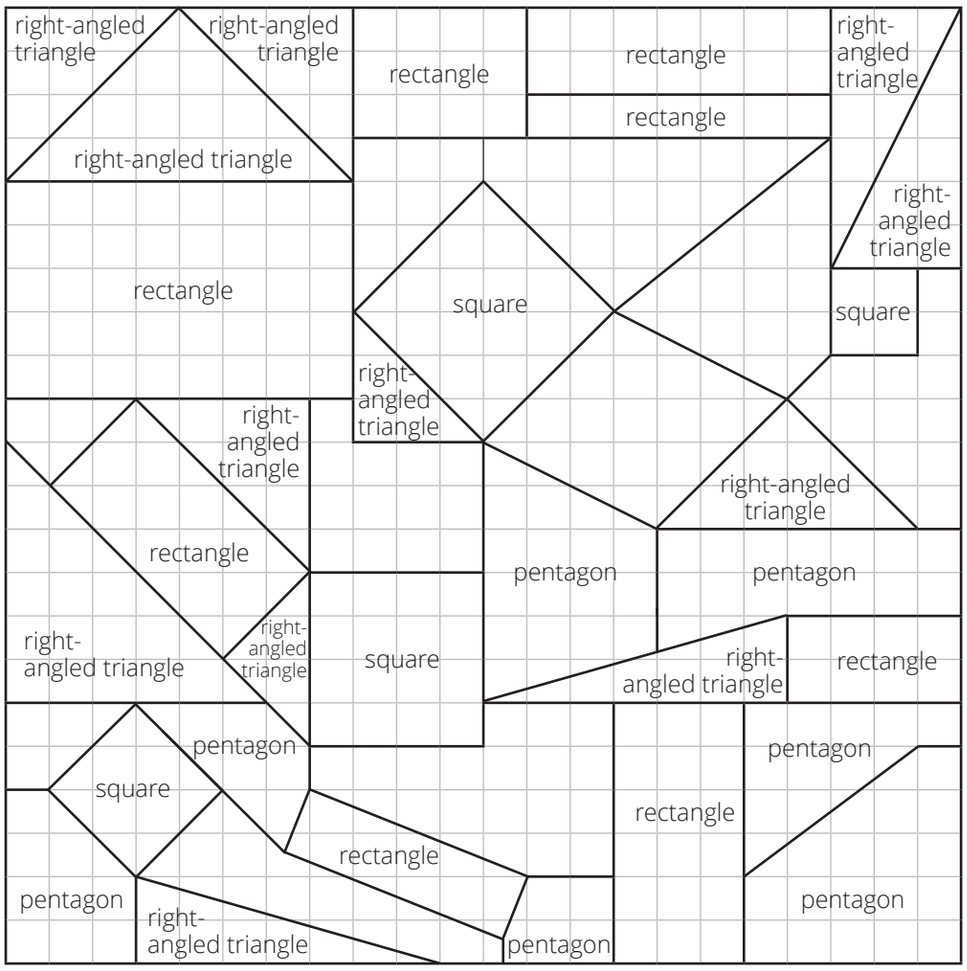
- Note that learners need coloured crayons or pencils for this activity.

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

- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Correct Activity 3 with learners so that they can receive immediate feedback.

Search for shapes!

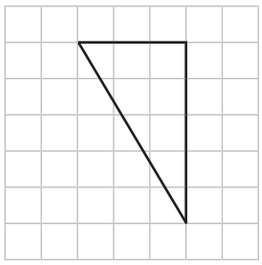
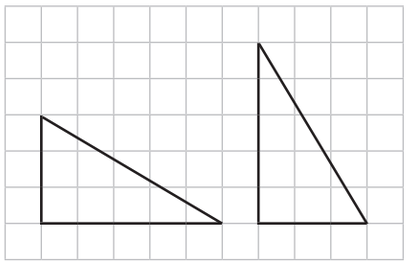
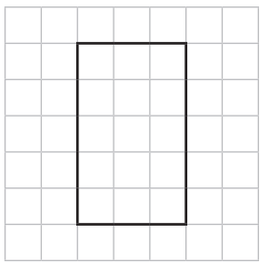
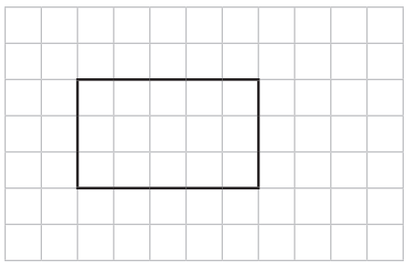
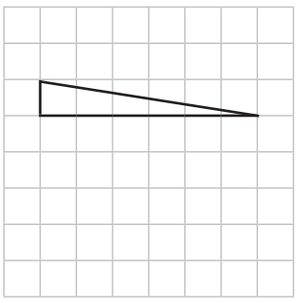
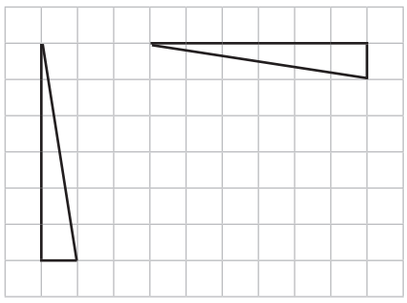
- Colour the squares red
- Colour the right-angled triangles blue
- Colour the rectangles green
- Colour the pentagons yellow.



5 HOMEWORK ACTIVITY (5 MINUTES)

Explain to learners what they need to do for homework.

Read the questions in the LAB with learners. Make sure all the learners understand what to do.

Draw each polygon on the grid paper. The polygon must be the same shape and size, but in a different orientation (facing a different way).	**Answer** Answers will vary. Check that the shape and size is the same. The orientation must be different.
1 	
2 	
3 	

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 learned to recognise that squares, rectangles and right-angled triangles with the same measurements can be the same even if they are facing a different direction.**

Lesson 9: Tessellations

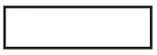
Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 3.4 Transformations
Lesson Objective: Learners will be able to pack out 2-D shapes to create composite 2-D shapes and tessellations.
Lesson Vocabulary: tile, tessellation
Teacher Resources: Shapes (square, rectangle and right-angled triangle, 8 copies of Tile 1); A3 Poster: Tessellations
Learner Resources: Sheet of blank paper, shapes (square, rectangle and right-angled triangle); Tile 1; coloured crayons or pencils, scissors
Date: Week Day

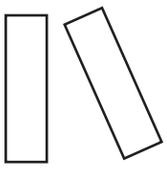
1 MENTAL MATHS (5 MINUTES)

		Answer			Answer
1	2 × 4 =	8	**6**	5 × 4 =	20
2	6 × 4 =	24	**7**	1 × 4 =	4
3	8 × 4 =	32	**8**	4 × 4 =	16
4	3 × 4 =	12	**9**	7 × 4 =	28
5	9 × 4 =	36	**10**	10 × 4 =	40

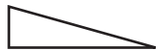
2 LINK TO PREVIOUS LESSON (5 MINUTES)

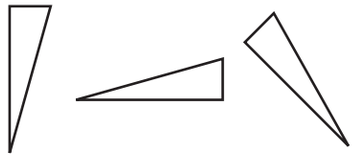
- Revise the concept of 2-D shapes in different orientations:

- Use the shapes (square, rectangle and right-angled triangle) from the Teacher's Resource Pack and the LAB
  Display the rectangle on the board in this orientation: 
  Say: **Place your rectangle on your desk in a different orientation.**
  (Some possible answers)



- Display the square on the board in this orientation: 
  Say: **Place your square on your desk in a different orientation.** ()

- Display the right-angled triangle on the board in this orientation: 
  Say: **Place your right-angled triangle on your desk in a different orientation.**

  (Some possible answers) 

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 9 are provided 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 find out how to pack out congruent shapes (shapes that are identical) to create composite 2-D shapes and tessellating patterns.

A tessellation is a pattern created by repeating one or more shapes to form a pattern. There must be no gaps and no overlaps between the shapes used to make the pattern. Another word for tessellating is tiling. Learners should use the term tile for the shape that is repeated to make the tessellation.

Note: Learners must keep their tiles for Lesson 10.

Say: **Today we are learning to create 2-D shapes from other 2-D shapes, and to create tessellations.**

Activity 1: Whole class activity and learners work on their own

- Ahead of the lesson, look around your classroom and school to find examples of tessellations to show your learners. Most tessellations will be found in floor and wall tiling and brickwork. Some ceiling patterns and window designs also form tessellations. Select two or three different tessellations around the school to show your learners.

- Use the tessellation poster.
  Say, pointing to relevant parts of the poster: **When shapes fit together to make a pattern with no gaps and no overlaps, we say a *tessellation* is formed.**
  Say, pointing to relevant parts of the poster:
  The shapes that are repeated to form a tessellation are called *tiles*.

- Put the tessellation poster up in the classroom.

- Say: **We are going to look at some tessellations in our school. You need your LAB and a pencil.**
  Show learners the tessellations you have selected.

For each tessellation:

- Ask: **Why do we say this is a tessellation?**
  (A shape has been repeated to make a pattern with no gaps and no overlaps)
- Ask: **What shape tile has been used to make the tessellation?**
  (Answers will vary. Rectangles are very common).
- Say: **Draw the tile and the pattern in your LAB.**

Activity 2: Learners work in pairs

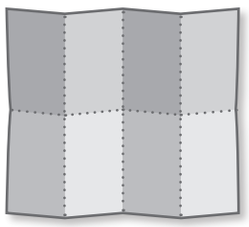
- Each pair of learners needs one sheet of paper.

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

- Walk around the classroom to support learners as needed.
- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Correct Activity 2 with learners so that they can receive immediate feedback.

1. Use the sheet of paper your teacher gave you.
You and your partner should use one sheet of paper. Keep the other sheet of paper for Activity 3.

a. Fold the paper like this:



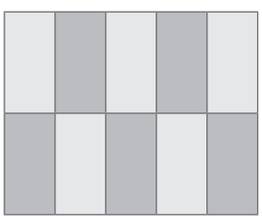
b. Cut along the folds to get 16 tiles like this:

c. Shade eight of the tiles one colour and eight of the tiles another colour

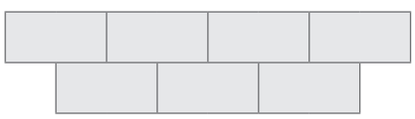
d. What shape is each tile? (Rectangle/ rectangular)

e. Use these tiles to make the following tessellations:

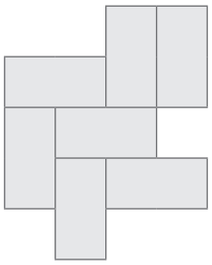
A.



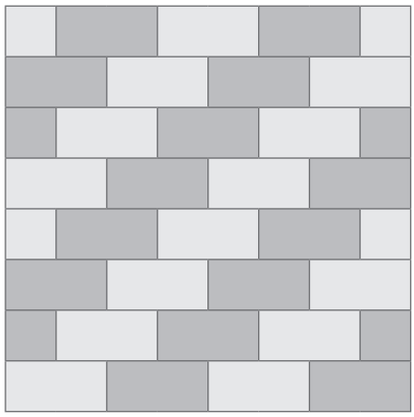
B.



C.



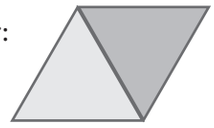
D.



2. Use Tile 1 from the back of this LAB. There are six white tiles and six grey tiles. Cut out each tile.

a. What shape is each tile? (Triangle)

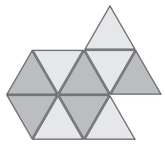
b. Use two tiles to make a quadrilateral. Draw the quadrilateral. Show the position of each tile.
Possible answer:



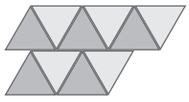
c. Use these tiles to make the following tessellations:

A.

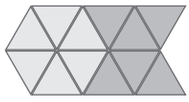
B.



C.



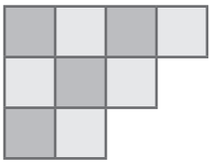
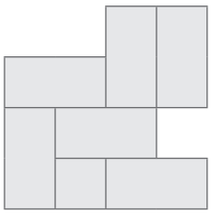
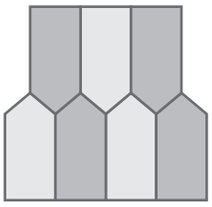
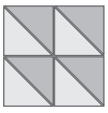
D.



d. Explain why each pattern you have made is a tessellation.
(The shape/ tile is repeated to make a pattern with no gaps and no overlaps)

5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain to learners what they need to do for homework.
- Read the questions in the LAB with learners. Make sure all the learners understand what to do.

Name the shapes being used for each tessellation:		
1		Name of the shape (square)
2		Name of the shape (rectangle)
3		Name of the shape (triangle)
4		Name of the shape (rectangle)
5		Name of the shape (hexagon)
6		Name of the shape (pentagon)
7		Name of the shape (right-angled triangle)

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 learned that some 2-D shapes can be used to make tessellations. We also learned that a tessellation is a pattern formed when shapes fit together with no gaps and no overlaps.**

Lesson 10: Locate objects on a grid

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 3.6 Position and movement
Lesson Objective: Learners will be able to locate objects, drawings or symbols on an alpha-numeric grid and a map with an alpha-numeric grid.
Lesson Vocabulary: locate, grid, column, row, cell, map
Teacher Resources: Tile 1, flashcards (column, row, grid), A3 poster of an alpha-numeric grid (laminated), non-permanent marker pen
Learner Resources: Tile 1
Date: Week Day

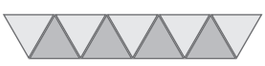
1 MENTAL MATHS (5 MINUTES)

		Answer			Answer
1	4 × 4 =	16	**6**	3 × 4 =	12
2	8 × 4 =	32	**7**	7 × 4 =	28
3	10 × 4 =	40	**8**	2 × 4 =	8
4	6 × 4 =	24	**9**	9 × 4 =	36
5	1 × 4 =	4	**10**	5 × 4 =	20

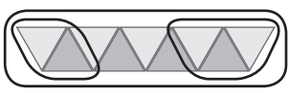
2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Use Tile 1 from the Teacher's Resource Pack and the LAB.

- Hold up Tile 1.
  Say: **What do we call this shape?** (Triangle)
  Ask: **Is this a right-angled triangle?** (No)
  Ask: **Why is this not a right-angled triangle?** (It does not have a right angle)
  Say: **Use Tile 1 to make a tessellation.**
  As the learners make their own tessellation, use Tile 1 to make a tessellation on the board like this:



- Ask: **Who will come to the board and show us a quadrilateral in the tessellation?**
  Some possible answers:



3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 9 are provided 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 (35 MINUTES)

In this lesson, learners find out how to use an alpha-numeric grid to locate things.

The principle of an alpha-numeric grid is that it uses the columns and rows to pinpoint a specific cell on the grid. It is called an alpha-numeric grid because it contains letters (usually in the columns) and numbers (usually in the rows).

Learners do not need to know the term alpha-numeric, but they do need to know how to use an alpha-numeric grid.

Learners should be able to use an alpha-numeric grid in two ways:

- to find the cell. For example, to answer questions like: 'What is in cell B3?'
- in which cell an object is. For example, to answer questions like: 'Where is the cow?'

Say: **Today we are learning to use a grid to show where things and places are.**

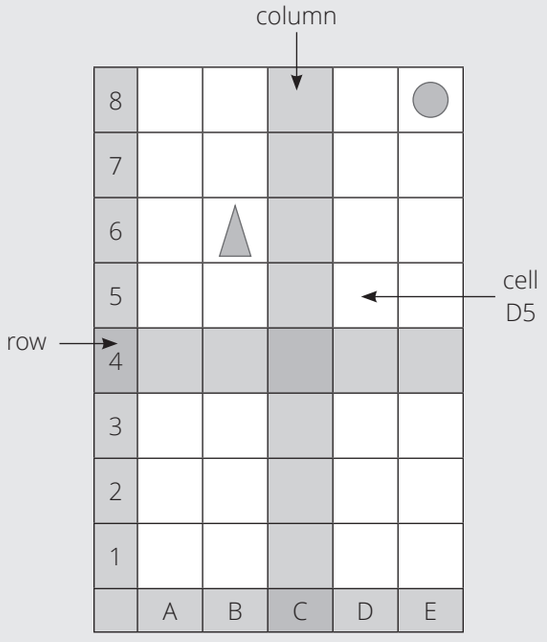
Activity 1: Whole class activity and Learners work on their own

- Use the grid from the Teacher's Resource Pack.
- Stick the grid on the board.

- Say, pointing to the grid: **This is a grid.**
  Say, as you label a row: **This is a row.**
  Say, as you label a column: **This is a column.**
  Say, as you label a cell: **This is a cell.**
  Say: **We number this 'cell D5'**

- Say, as you draw a triangle in B6 and pointing the column B and the row 6:
  This triangle is in B6.

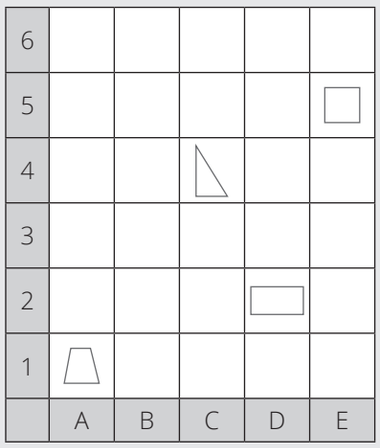
- Draw a circle in E8. Point to column E and row 8 and then ask:
  In which cell is the circle? (E8)



- Say: **Use the grid from your LAB.**

- Say: **Draw a rectangle in D2.**
  Say: **Draw a square in cell E5.**
  Say: **Draw a right-angled triangle in C4.**
  Say: **Draw a quadrilateral in A1.**

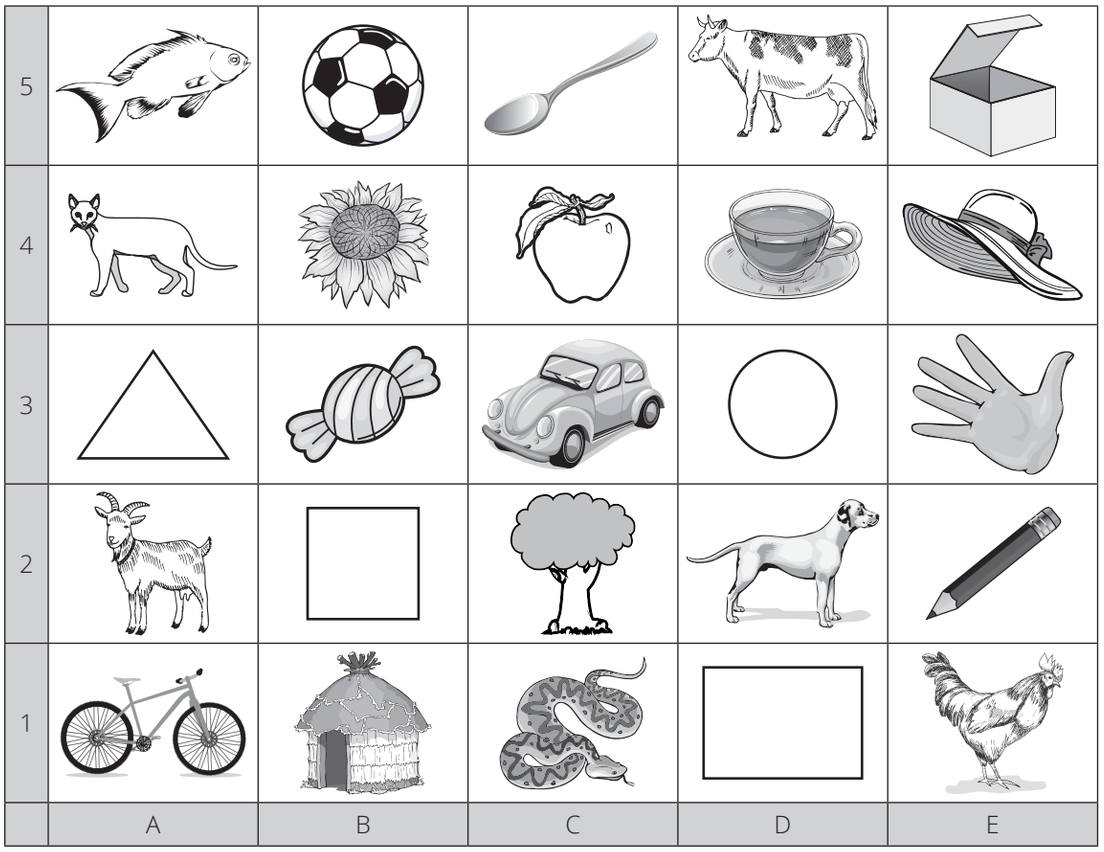
- Walk around the class and make sure that the learners are drawing the shapes in the correct cells.



Activity 2: Learners work in pairs

- Say: **Complete Activity 2 in your LAB.**
- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Correct Activity 2 with learners so that they can receive immediate feedback.

Look at the grid and then answer the questions.



1. Name the objects found in the following cells:
   - **a.** B2 (square)
   - **b.** C4 (apple)
   - **c.** D2 (dog)
   - **d.** B4 (flower)
   - **e.** A3 (triangle)
   - **f.** C1 (snake)

2. In which cell will you find the following?
   - **a.** Spoon (C5)
   - **b.** Cat (A4)
   - **c.** Hand (E3)
   - **d.** Cup (D4)
   - **e.** Chicken (E1)
   - **f.** Car (C3)

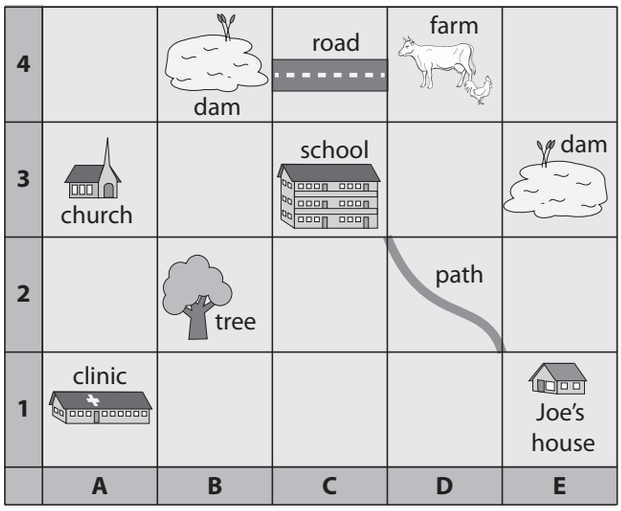
Activity 3: Learners work in pairs

- Say: **Complete Activity 3 in your LAB.**
- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Correct Activity 3 with learners so that they can receive immediate feedback.

1. What is located in these cells?
   - **a.** B2 (tree)
   - **b.** B4 (dam)
   - **c.** C4 (road)

2. The road in cell C4 goes between two places. What are these two places? (The dam and the farm)

3. In which cells can you find the following places?
   - **a.** The school (C3)
   - **b.** The clinic (A1)
   - **c.** The farm (D4)
   - **d.** Joe's house (E1)
   - **e.** The church (A3)



5 HOMEWORK ACTIVITY (5 MINUTES)

Explain to learners what they need to do for homework.

Read the questions in the LAB with learners. Make sure all the learners understand what to do.

This grid shows where learners sit in the classroom.

6		Sofie					
5			Tumi			Jim	
4	Mzo				Tia		
3						Rob	
2				Siya			
1	Flo						Mary
	A	**B**	**C**	**D**	**E**	**F**	**G**

1. Who sits in these places?
- **a**. F3 (Rob)
- **b**. B6 (Sofie)
- **c**. G1 (Mary)

2. Where do the following learners sit?
- **a**. Jim (F5)
- **b**. Tia (E4)
- **c**. Mzo (A4)

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 learned to find places on a grid.**

Lesson 11: Draw and use a map

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.		
CAPS topics: 3.6 Position and movement		
Lesson Objective: Learners will be able to locate places on a map with an alpha-numeric grid.		
Lesson Vocabulary: grid, hexagon, pentagon, square, rectangle, triangle, locate		
Teacher Resources: Alpha-numeric grid laminated, non-permanent marker pen, A3 poster of the park		
Date:	Week	Day

1 MENTAL MATHS (5 MINUTES)

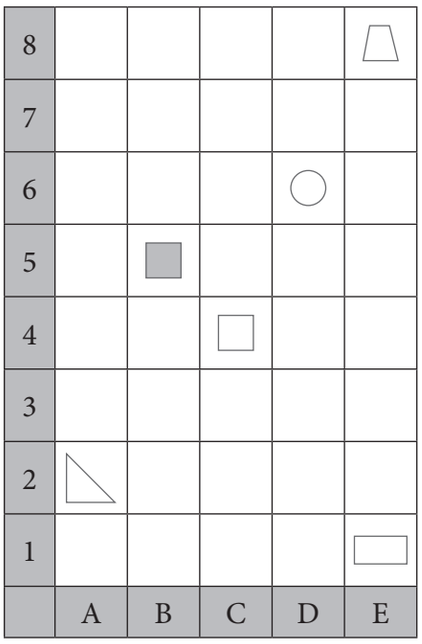
		Answer			Answer
1	7 × 4 =	28	**6**	10 × 4 =	40
2	4 × 4 =	16	**7**	2 × 4 =	8
3	9 × 4 =	36	**8**	8 × 4 =	32
4	5 × 4 =	20	**9**	3 × 4 =	12
5	6 × 4 =	24	**10**	0 × 4 =	0

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Teachers use the grid from the Teacher's Resource Pack.
- Learners use the grid from the LAB.

- Say: **Use the grid from your LAB.**

- Say: **Draw a right-angled triangle in A2.**
  After each instruction, draw the shape in the correct position so that learners get immediate feedback.
  Say: **Draw a square in C4.**
  Say: **Draw a quadrilateral in E8.**
  Say: **Draw a shaded-in square in B5.**
  Say: **Draw a circle in D6.**
  Say: **Draw a rectangle in E1.**



3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 10 are provided 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 (35 MINUTES)

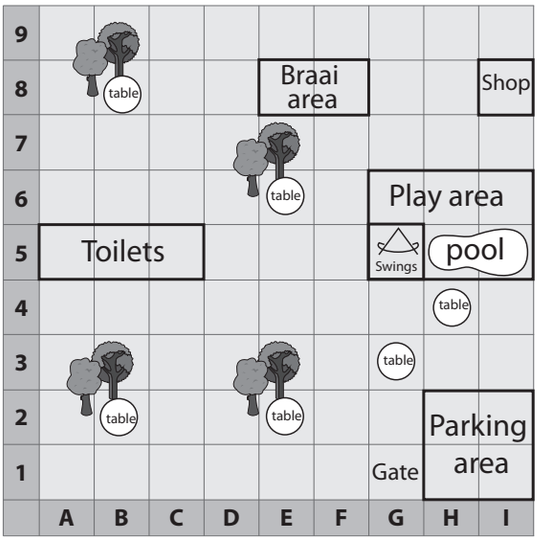
In this lesson, learners find places on a map with an alpha-numeric grid.

Say: **Today we are learning to use a grid to find places on a map.**

Activity 1: Learners work in pairs

- Say: **Complete Activity 1 in your LAB.**
- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Correct Activity 1 with learners so that they can receive immediate feedback.

1. In which cells will you find the Parking Area? (H1, H2, I1 and I2)
2. In which cell is the gate into the park? (G1)
3. What is in E8 and F8? (The braai area)
4. In which cells are the toilets? (In A5, B5 and C5)
5. **a.** How many tables are there in the park? (Six)
   b. Which tables do not have trees next to them? (The tables in G3 and H4)
   c. Which table is closest to the braai area? (The table in E6)
6. What is located in H5 and I5? (Pool)



Activity 2: Learners work on their own

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

- Walk around the classroom to support learners as needed.
- Read the questions in the LAB with learners. Make sure all the learners understand what to do.

- Correct Activity 2 with learners so that they can receive immediate feedback.

1. Draw a map of a school. It could be your school, or it could be any other school. Some things you could show on your map. You don't have to show all of them:

Office
Classrooms
Boys' toilets
Girls' toilets
School gate
Parking area
Play area
Garden
Tree

Draw your map on the grid.

Map of a school

	A	B	C	D	E
5					
4					
3					
2					
1					

2. Use the map you have drawn. Write down four questions about the map:

a. What is located in cell _____ on the map?
b. What is located in cell _____ on the map?
c. Where is the _____ located?
d. Where is the _____ located?

(Answers will vary. Check that questions match the maps)

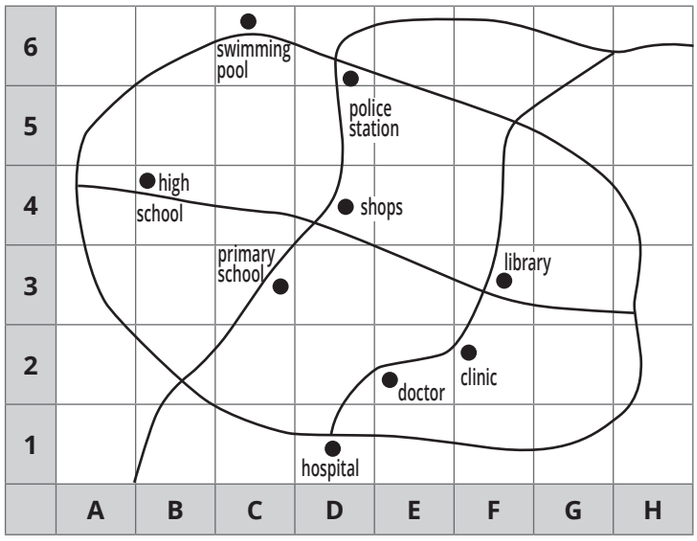
3. Swap with your partner.
You should answer your partner's questions and your partner should answer your questions.

4. Explain why you placed the school gate where you did.
(Answers will vary. Check learners' reasoning.)
(Possible answers: I put the gate next to the car park. I put the gate close to the office. I put the gate near the outside of the school)

5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain to learners what they need to do for homework.
- Read the questions in the LAB with learners. Make sure all the learners understand what to do.

Study the map of a town. Answer the questions.



1. Which place is in cell C3?
(Primary school)

2. Where on the map is the high school?
(B4)

3. Which place is closest to the hospital?
(Doctor)

4. Explain why it is a good idea for the doctor to be close to the hospital and the clinic.
(The doctor, clinic and hospital all help people who are sick)

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 learned to use a grid to locate places on a map.**

Lesson 12: Consolidation

Teacher's notes		
This lesson allows for consolidation of the previous lessons' content.		
CAPS topics: 3.1 (Properties of 2-D shapes); 3.4 (Transformations); 3.6 (Position and Movement)		
Lesson Objective: Learners will revise 2-D shapes, Tessellations and Position and Movement		
Lesson Vocabulary: square, rectangle, quadrilateral, right angle, right-angled triangle, hexagon, pentagon, grid, locate, tessellation, polygon		
No resources needed.		
Date:	Week	Day

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

The main topics in this unit were 2-D shapes, Transformations and Position.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

- Learners sometimes struggle to recognise a polygon when it is in a less familiar orientation.

  For example: some learners might struggle to recognise  as a square and  as a right-angled triangle.

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 11 are provided in Lesson 11.
Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

4 CLASSWORK

Today we are going over what we learned in this unit. We will practise naming and drawing 2-D shapes, tessellations and the use of a grid to locate objects and places on a map.

- You could use this time for learners to complete classwork or homework activities as necessary.
- You could use the Additional Activities from textbooks that you have or use the Consolidation Activity given.

Additional activities for consolidation

Refer to the table. Select additional activities from the textbook/s you have.

Use the answers given in the Teacher's Guide to correct the work.

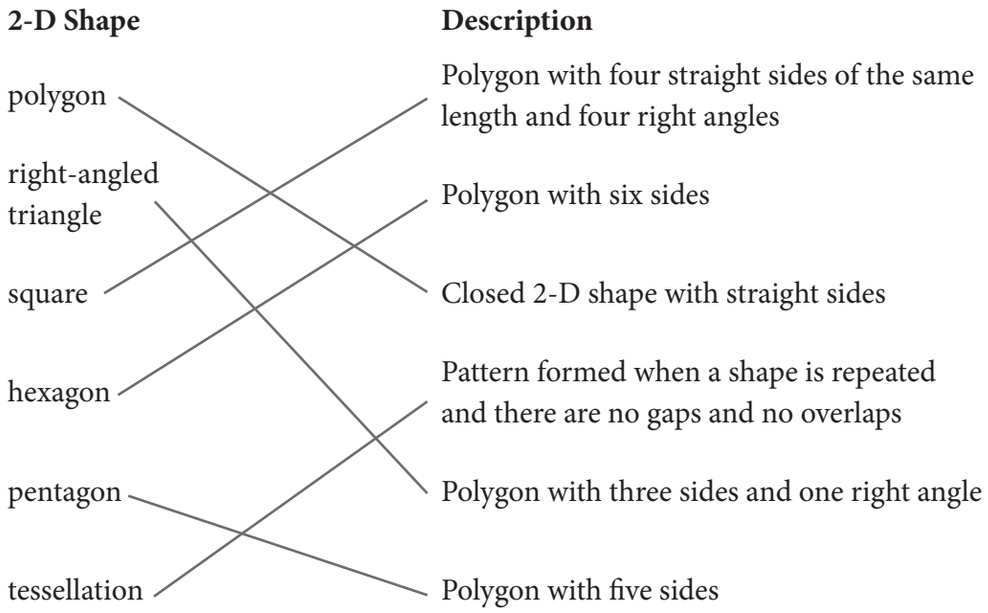
	Fabulous	Oxford Headstart	Oxford Successful	Platinum	Premier	Sasol Inzalo	Solutions for All	Study & Master	Viva
LB	74-78 135-137 173-176 237-241	72-76 152-154 208-214 292-298	60-65 122-125 162-169 200-203	42-47 86-87 120-127 150-153 188-191	41-43 93-95 138-145 209-214	96-103 189-192 250-256 329-338	64-72 141-145 235-239 299-308	83-90 162-165 210-214 282-288	46-49 99-100 165-167 209-213
TG	47-51 97-98 136-140 196-201	94-98 182-186 246-252 337-344	78-80 120-123 146-149 167-168	35-38 70-71 96-100 117-118 151-152	18-20 46 70-73 109-110	103-110 210-214 283-293 384-395	45-52 103-104 190-192 244-149	106-114 213-215 277-287 378-380	30-31 54 85 104-105

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

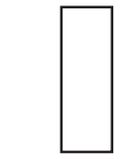
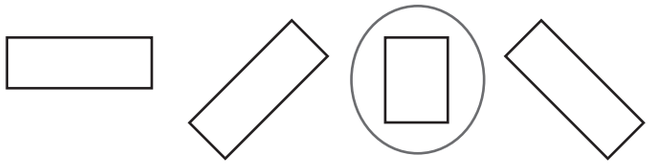
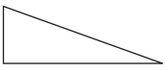
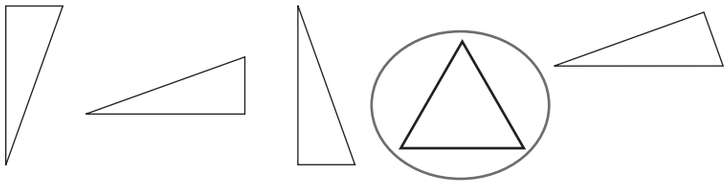
Read the questions in the LAB with learners. Make sure all the learners understand what to do.

Consolidation Activity

1. Draw a line to match the word with its description.



2. Draw a circle around the polygon in Column B that is not the same as the polygon in Column A.

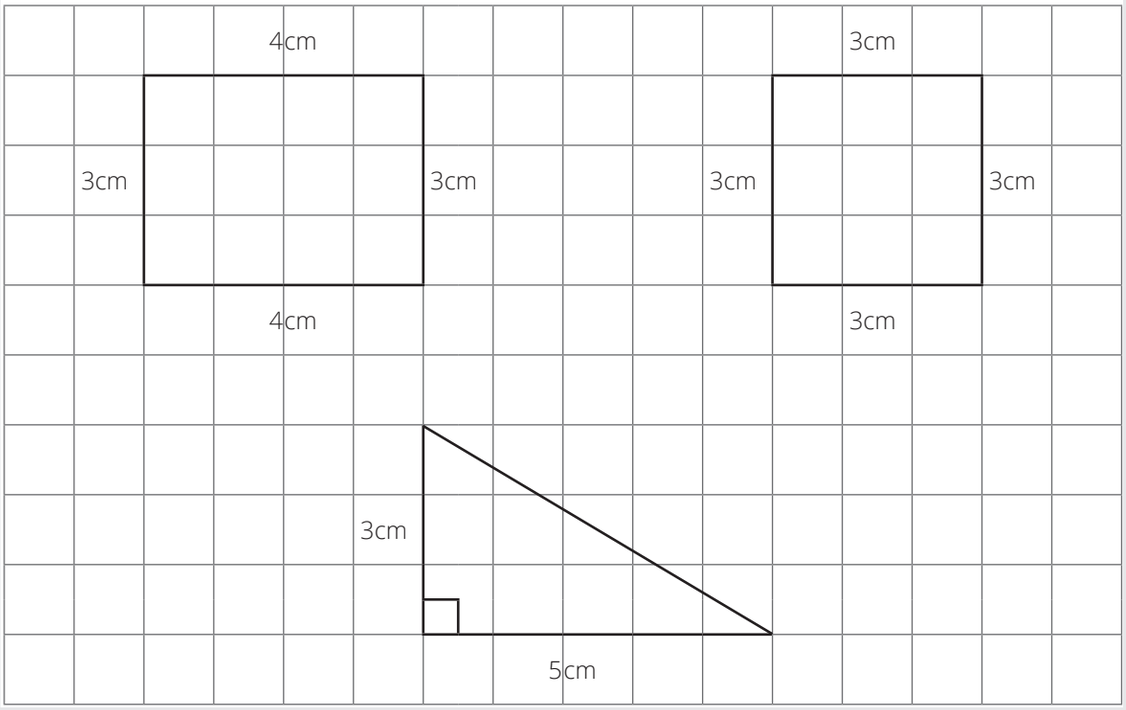
Column A	**Column B**
	
	

3. Each side of the small squares in this grid is 1 centimetre.
Draw the following polygons on the grid:

a. A rectangle with sides of 4 centimetres and 3 centimetres.
Write the length of the sides on the rectangle.

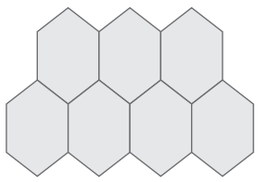
b. A square with one side of 3 centimetres.
Write the length of the sides on your square.

c. A right-angled triangle with one side 3 centimetres long and another side 5 centimetres long making the right angle.
Draw a small box in the corner that is a right angle.

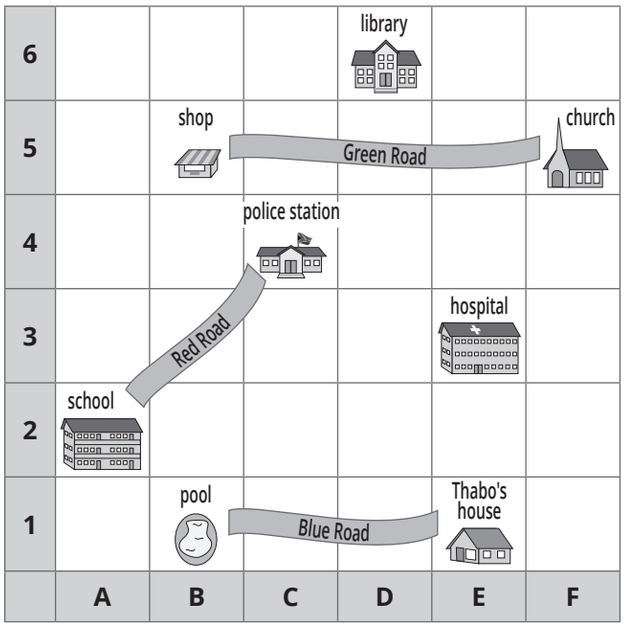


4. **a.** What shape was used to make the tessellation shown in this brick wall? (Rectangle)

b. What shape was used to make this tessellation? (Hexagon)



5. Look at the map showing a town.



a. In which cell will you find:
The school (A2)
The police station (C4)
The hospital (E3)

b. What will you find in the following cells?
D6 (Library)
B5 (Shop)
F5 (Church)

c. Thabo wants to walk from his house to the pool. Which road should he use?
(Blue Road)

5 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 revised 2-D shapes, tessellations and the use of a grid to locate objects and places on a map.**

Unit 2: COMMON FRACTIONS

INTRODUCTION

This unit focuses on common fractions. A fraction tells how many equal parts a whole is divided into. Because the expression of a fraction using numbers (for example $\frac{1}{4}$) is abstract for a Grade 4 learner, in this unit we start with concrete and semi-concrete representations of fractions and then move in a structured and meaningful way to more abstract representations. In this way the learners start to understand that a fraction is an expression of a relationship between a part and a whole.

In this unit, we use three different models to develop the fraction concept. One is the area model where we find $\frac{1}{3}$ of a garden, another is the length model where we find $\frac{1}{8}$ of a kilometre, and a third is the quantity model where we find $\frac{1}{4}$ of the class.

We focus on the four framework dimensions in the following ways in this unit:

Framework dimension	How the dimension is developed in this unit
Conceptual understanding	It is developed in every lesson. For example, the underlying concept in all lessons is that fractional parts are equal shares or equal-sized portions of a whole thing or a whole set.
Procedural fluency	Learners are given multiple opportunities to convert fractions and to add and subtract fractions.
Strategic competence	Learners learn more than one way of performing a procedure, and then are given opportunities to decide which method, or strategy, to use.
Reasoning	Learners apply reasoning when they decide what denominator to use when converting a whole number to a fraction before doing an operation.

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

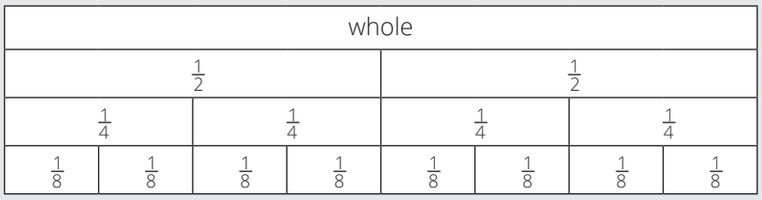
Concept development		Developed in every lesson.
Practising procedures	✓	Learners are given multiple opportunities to practise converting fractions and adding and subtracting fractions
Problem solving	✓	Learners solve everyday problems involving fractions
Connecting topics and concepts	✓	Content Area: Number, operations and relationships (Common fractions) is presented in conjunction with Content Area: Measurement.
Addressing gaps in learners' knowledge and addressing learners' errors	✓	Through correction of classwork activities, content gaps and leaners' errors can be addressed In addition, the 'Link to the previous lesson' activity gives the teacher an opportunity to informally assess learning.
Active learning	✓	Learners do paper folding to discover for themselves what equivalent fractions are.

Applying maths in context	✓	When adding and subtracting fractions, everyday problems are often placed in the context of measurement.

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
Above (position)	In a higher place than. Example: The fraction strip is above the number line
add	To join two or more numbers together to find the total amount Example: 3 + 2 + 1 = 6
compare	To look for similarities or differences Example: You can compare the size of fractions $\frac{1}{4}$ is smaller than $\frac{1}{2}$
convert	To change Example: You can convert an improper fraction to a mixed number
distance	The length between two points. If you measure a distance, you find out how far it is from one point to another.
eighth	A fraction that is one part made by dividing a whole into eight equal parts. ($\frac{1}{8}$)
equal to	Having the same amount or value. Example $\frac{1}{4} = \frac{1}{4}$
equivalent fractions	Fractions which have the same value Example One half and two quarters are equivalent fractions
fifth	A fraction that is one part made by dividing a whole into five equal parts. ($\frac{1}{5}$)
fourth or quarter	A fraction that is one part made by dividing a whole into four equal parts. ($\frac{1}{4}$)
fraction	The portion that is expressed in a way as dividing a whole into equal parts.
fraction strip	Piece of paper or strip of paper that has been folded, or divided, into equal-sized parts Example: a strip divided into four equal parts. 

Term	Explanation / diagram
fraction wall	A way of comparing different fractions set out in the form of a wall. Example: A fraction wall showing a whole, halves, quarters and eighths. 
greater than (>)	Bigger/ more than Used when comparing two unequal numbers. Example $\frac{1}{2} > \frac{1}{4}$ or one half is greater than one quarter.
half (plural 'halves')	A fraction that is one part made by dividing a whole into two equal parts. ($\frac{1}{2}$)
improper fraction	Fraction where the digit on top (the numerator) is larger than the digit at the bottom (the denominator). It is a fraction that is more than one. Example: $\frac{5}{4}$
kilogram (kg)	A standard metric unit used to measure mass. The mass of 1 kg is the same everywhere in the world
kilometre (km)	A standard metric unit used to measure length / distance The length of 1 km is the same everywhere in the world
less than (<)	Smaller; not as many as Used when comparing two unequal numbers Example: $\frac{1}{4} < \frac{1}{2}$ or one quarter is less than one half.
metre (m)	A standard metric unit used to measure length / distance The length of 1 m is the same everywhere in the world
mixed number	A whole number with a proper fraction Example: $1\frac{1}{2}$
ninth	A fraction that is one part made by dividing a whole into nine equal parts. ($\frac{1}{9}$)
order	You can put things in order of size of quantity. Example: We can write fractions in order from biggest to smallest
proper fraction	Fraction where the digit on top (the numerator) is smaller than the digit at the bottom (the denominator). It is a fraction that is less than one. Example: $\frac{3}{4}$
quarter or fourth	A fraction that is one part made by dividing a whole into four equal parts. ($\frac{1}{4}$)
seventh	A fraction that is one part made by dividing a whole into seven equal parts. ($\frac{1}{7}$)
sixth	A fraction that is one part made by dividing a whole into six equal parts. ($\frac{1}{6}$)
subtract	Take away (–)

Term	Explanation / diagram
third	A fraction that is one part made by dividing a whole into three equal parts. ($\frac{1}{3}$)
whole	All, everything, total amount. All of the parts together; as 1.
whole numbers	Counting numbers starting from 0. Examples: 0, 1, 2, 3, 4, 5, 6, ... A fraction is not a whole number.
width	The distance across / from side to side. It is sometimes called the breadth.

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	Viva
LB	109-114	107-117	86-95	62-67	64-68	136-146	98-106	114-122	67-73
	165-166	183-190	147-152	108-112	120-129	211-224	179-188	188-195	120-123
TG	75-78	139-146	96-101	53-55	32-34	149-160	74-79	156-173	39-42
	128-130	224-229	138-140	87-89	61-65	237-254	144-149	245-256	64-66

UNIT PLAN AND OVERVIEW FOR UNIT 2: Common fractions

LP	Lesson title	Lesson objectives Learners will be able to:	Lesson Resources Learners need classwork books, LABs, writing materials and a pair of scissors for all lessons	Date completed
13	Halves, quarters and eighths	identify and name halves, quarters, and eighths and give equivalent forms of fractions.	Teacher Resources: Two sheets of A4 paper; Fraction strips showing thirds, quarters, fifths and eighths; A3 Fraction Walls (one showing whole, halves, quarters and eighths; the second showing whole, thirds, sixths, ninths; the third showing whole, fifths, tenths); Flashcard: Equivalent fractions Learner Resources: One sheet of A4 paper per learner; glue; coloured crayons or pencils	
14	Compare fractions	compare fractions with the same denominators or denominators which are a multiple of one another and use the inequality symbols correctly	Teacher Resources: Fraction strips showing halves, thirds, quarters, fifths, sixths, sevenths and eighths; Fraction circles showing halves, thirds, quarters, fifths, sixths, sevenths and eighths. A3 fraction line and number line No learner resources.	
15	Order fractions	order and compare fractions and use the inequality symbols correctly.	Teacher Resources: 2 fraction circles; A3 poster of Fraction number lines; Flashcards (>; <; = and equivalent fractions), ruler Learner resources: Ruler	
16	Fractions bigger than 1	identify improper fractions and mixed numbers, will be able to convert improper fractions to mixed numbers, and to convert mixed numbers to improper fractions.	Teacher Resources: A3 poster of a fraction wall; 5 strips longer than 1 m long; flash cards for each of the fractions $\frac{1}{4}$; $\frac{3}{7}$; $\frac{4}{4}$; $\frac{5}{5}$; $\frac{5}{3}$; $\frac{7}{4}$; one number line marked in fifths from 0 to 3, another number line marked in thirds from 0 to 3; Prestik Learner Resources: Each learner (or pair or group) needs 3 strips of paper made from A4 paper; glue	
17	Consolidation	revise equivalent fractions, comparing and ordering fractions, proper fractions, improper fractions and mixed numbers.	Teacher Resources: A3 poster of fractions number lines	

18	Adding fractions (1)	add fractions with the same denominator.	Teacher Resources: Number line divided in eighths; another number line divided in sixths Learner Resources: A strip of paper (make these by folding an A4 piece of paper into strips about 3 cm wide)	
19	Adding fractions (2)	add fractions with the same denominator.	Teacher Resources: Number line divided into fifths; A4 paper to fold into fraction strips (made by folding the piece of paper into strips 2 cm wide). No learner resources needed	
20	Subtract fractions (1)	subtract fractions with the same denominator.	Teacher Resources: Number line divided into fifths No learner resources needed	
21	Subtract fractions (2)	subtract fractions with the same denominator.	No resources needed	
22	Consolidation	revise the addition and subtraction of fractions with the same denominator.	No resources needed	

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 13: Halves, quarters and eighths

Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.

CAPS topics: 1.2 Common fractions

Lesson Objective: Learners will be able to identify and name halves, quarters, and eighths and give equivalent forms of fractions.

Lesson Vocabulary: whole, fraction, equivalent fraction, half, third, quarter, fourth, fifth, sixth, eighth, ninth, fraction wall, fraction strip

Teacher Resources:

- Fraction strips showing thirds, quarters (or fourths), fifths and eighths.
- Two sheets of A4 paper torn in half as demonstrated below, a marker pen and Prestik.
- A3 Fraction walls: whole, halves, quarters and eighths; whole; thirds, sixths, and ninths; whole; fifths; tenths
- Flashcard (Equivalent fractions)

Learner Resources: One sheet of A4 paper which they can fold and tear to make four fraction strips, glue, coloured crayons or pencils

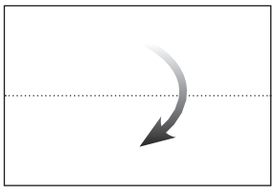
Date: Week Day

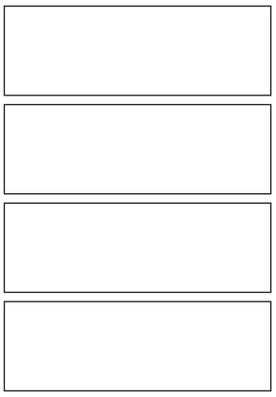
BEFORE THE LESSON

Prepare fractions strips for yourself to use in Activity 1.

- You will need two sheets of A4 paper.
  Work with them in the landscape orientation.

- Take each piece of paper and fold it in half like this:
- Make a definite fold in each piece of paper by pressing down hard on the paper.
  Tear the paper along the folds.
  It is easier to tear if you first wet your finger and run it along the folds before tearing it.





- Use your four strips to demonstrate to the learners what to do during Activity 1.

1 MENTAL MATHS (5 MINUTES)

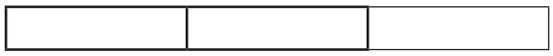
Read each fraction to your partner

		Answer			Answer
1	$\frac{1}{2}$	one half / a half / half	**6**	$\frac{3}{4}$	three quarters / three fourths
2	$\frac{1}{4}$	one quarter / one fourth	**7**	$\frac{6}{8}$	six eighths
3	$\frac{2}{2}$	two halves	**8**	$\frac{1}{8}$	one eighth
4	$\frac{3}{8}$	three eighths	**9**	$\frac{2}{4}$	two quarters / two fourths
5	$\frac{5}{8}$	five eighths	**10**	$\frac{8}{8}$	eight eighths

2 LINK TO PREVIOUS LESSON (5 MINUTES + 5 MINUTES BECAUSE THERE IS NO HOMEWORK TO CORRECT)

- This is the first lesson on Common Fractions in Grade 4.
  Revise Grade 3 common fraction concepts by asking questions.
  Use the fraction strips cut out of the Teacher's Resource Pack.

- Say: **Work with your partner and colour in two thirds of the first shape in your LAB.**

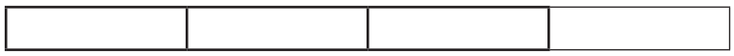
  

  Ask: **Who would like to come to the board and colour in two thirds of this shape?**

  (Answer: )

  Say: **Say the shaded part of the fraction out aloud.** (Two thirds)
  Say: **Say the unshaded part of the fraction out aloud.** (One third)

- Say: **Work with your partner and colour in three quarters or three fourths of the second shape in your LAB.**

  Ask: **Who would like to come to the board and colour in three quarters of this shape?**

  (Answer: )

  Say: **Say the shaded part of the fraction out aloud.** (Three quarters or three fourths)
  Say: **Say the unshaded part of the fraction out aloud.** (One quarter or one fourth)

- Say: **Work with your partner and colour in two fifths of the third shape in your LAB.**

  Ask: **Who would like to come to the board and colour in two fifths of this shape?**

  (Answer: )

Say: **Say the shaded part of the fraction out aloud.** (Two fifths)
Say: **Say the unshaded part of the fraction out aloud.** (Three fifths)

- Say: **Work with your partner and colour in five eighths of the fourth shape in your LAB.**

Ask: **Who would like to come to the board and colour in five eighths of this shape?**

(Answer: )

Say: **Say the shaded part of the fraction out aloud.** (Five eighths)
Say: **Say the unshaded part of the fraction out aloud.** (Three eighths)

3 CORRECT HOMEWORK ACTIVITY

This is the first activity on the topic of Common Fractions. There is no homework to correct.

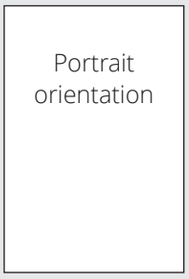
4 LESSON CONTENT – CONCEPT DEVELOPMENT (40 MINUTES)

In this lesson, learners use paper folding to revise the concept of fractions.
Learners also revise equivalent fractions in which the denominator of one fraction is a multiple of the denominator in another fraction.
Use language carefully and deliberately as you teach fractions. For example:

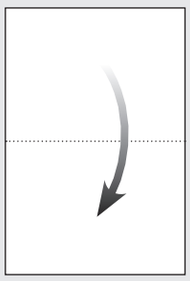
- The fraction $\frac{1}{8}$ is read as 'one eighth', not 'one over eight'.
- Use the terms 'one quarter' and 'one fourth' interchangeably when dealing with the fraction $\frac{1}{4}$. Learners who don't yet know the term 'one quarter' might find 'one fourth' easier to understand as it explains clearly that the whole is divided into four equal parts.

Say: **Today we are revising halves, quarters and eighths and are going to look at equivalent forms of these fractions.**

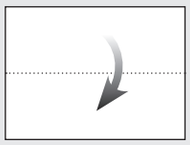
- Each learner needs one piece of A4 paper.
  They will work with their piece of paper in portrait orientation



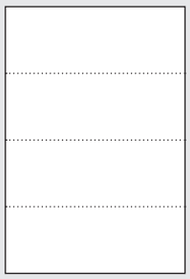
- Say: **Take your piece of paper and fold it in half like this:**
  Tell the learners to press down hard on the fold to make a definite fold in the paper.



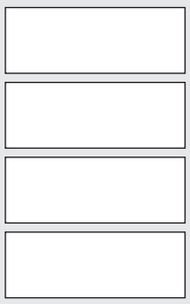
- Say: **Keep it folded in half and fold it in half again like this:**
  Again, tell the learners to press down hard on the fold to make a definite fold in the paper.



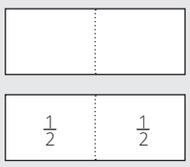
- Say: **When you open the piece of paper out, you end up with four pieces like this:**



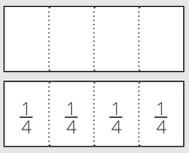
- Say: **Tear the paper carefully along the folds so that you have four equal strips like this:**
  Show the learners how they can run a wet finger along the folds to make the paper easier to tear.



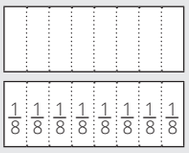
- Say: **Take one of the strips and fold it in half again. Open it and draw over the fold with a pencil.**
  Ask: **Into how many equal parts has the piece of paper been divided?** (Two)
  Ask: **What do we call each part?** (A half)
  Ask: **How do we write a half using digits?** ($\frac{1}{2}$)
  Say: **Write the fraction on each part.**
  Ask: **What does the 2 in the fraction tell us?**
  (We have divided the whole into 2 equal parts)
  Ask: **What does the 1 in the fraction tell us?**
  (We are taking 1 of 2 equal parts)



- Say: **Take a second strip. Fold it in half and then fold it in half again. Open it and draw over the folds with a pencil.**
  Ask: **Into how many equal parts has the piece of paper been divided?** (Four)
  Ask: **What do we call each part?** (A quarter or a fourth)
  Ask: **How do we write a quarter using digits?** ($\frac{1}{4}$)
  Say: **Write the fraction on each part.**
  Ask: **What does the 4 in the fraction tell us?**
  (We have divided the whole into 4 equal parts)
  Ask: **What does the 1 in the fraction tell us?**
  (We are taking 1 of 4 equal parts)

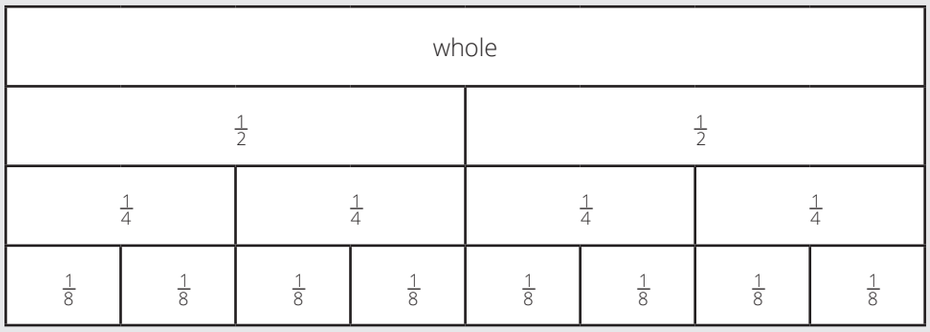


- Say: **Take a third strip. Fold it in half, fold it in half a second time and then fold it in half for the third time. Open it and draw over the folds with a pencil.**
  Ask: **Into how many equal parts has the piece of paper been divided?** (Eight)
  Ask: **What do we call each part?** (An eighth)
  Ask: **How do we write a quarter using digits?** ($\frac{1}{8}$)
  Say: **Write the fraction on each part.**
  Ask: **What does the 8 in the fraction tell us?**
  (We have divided the whole into 8 equal parts)
  Ask: **What does the 1 in the fraction tell us?**
  (We are taking 1 of 8 equal parts)



- Say: **Take the final strip.**
  Ask: **Has this fraction strip been divided into parts?** (No)
  Say: **We call it the whole.**
  Say: **Label your fraction strip like this:**

- Say: **Place your strips on your desk one below the other like this:**



- Say: **Stick your strips in your classwork book like this.**
  Say: **We call this a 'Fraction Wall'.**

Activity 2: Learners work in pairs

- Stick the A3 fraction wall showing Whole, halves, quarters and eighths on the board. The learners turn to their fraction wall in the LAB.

- Say: **Shade in $\frac{1}{2}$ on your fraction wall.**
  Ask: **Who would like to shade in $\frac{1}{2}$ on my fraction wall?**

whole							
$\frac{1}{2}$				$\frac{1}{2}$			
$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$	
$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$

- Point to the fraction wall and ask:
  How many quarters (or fourths) there are in one half. (2 quarters or 2 fourths)
  Say: **That means $\frac{1}{2}$ and $\frac{2}{4}$ are the same size. We can write $\frac{1}{2} = \frac{2}{4}$.**

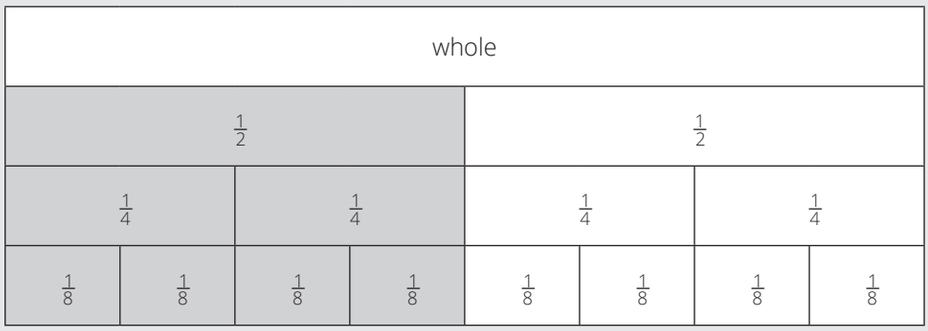
- Stick the flashcard "equivalent fractions" on the board and say: **Two quarters and one half are equivalent fractions. They represent the same amount of the whole.**

- Say: **Shade in $\frac{2}{4}$ on your fraction wall.**
  Say: **Who would like to shade in $\frac{2}{4}$ on my fraction wall?**

whole							
$\frac{1}{2}$				$\frac{1}{2}$			
$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$	
$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$

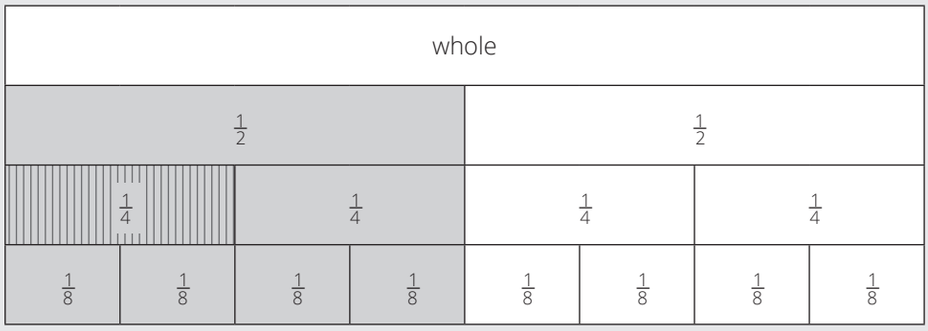
- Point to the fraction wall and ask: **How many eighths there are in one half.** (4 eighths)
  Say: **That means $\frac{1}{2}$ and $\frac{2}{4}$ and $\frac{4}{8}$ are the same size. We can write $\frac{1}{2} = \frac{2}{4} = \frac{4}{8}$**
  Say: **Four eighths and two quarters and one half are equivalent fractions. They represent the same amount of the whole.**

- Say: **Shade in $\frac{4}{8}$ on your fraction wall.**
  Say: **Who would like to shade in $\frac{4}{8}$ on my fraction wall?**



- Let learners write $\frac{4}{8} = \frac{2}{4} = \frac{1}{2}$ in their LAB.

- Say: **Now we want to find out which fraction is equivalent to $\frac{1}{4}$.**
  Say: **Use vertical lines to shade in $\frac{1}{4}$ on your fraction wall.**
  Say: **Who would like to use vertical lines to shade in $\frac{1}{4}$ on my fraction wall?**



  Ask: **What fraction is equivalent to $\frac{1}{4}$?** ($\frac{2}{8}$ or two eighths)
  Say: **One quarter (or one fourth) and two eighths are equivalent fractions. They represent the same amount of the whole.**
  Let learners write $\frac{1}{4} = \frac{2}{8}$ in their LAB.

- Say: **Use your fraction wall. Complete Activity 2 in your LAB**

Use your fraction wall to help you fill in the missing digits

1. $\frac{1}{4} = \frac{\square}{8}$ $(\frac{1}{8})$

2. $\frac{\square}{2} = \frac{4}{8}$ $(\frac{1}{2})$

3. $\frac{\square}{8} = \frac{2}{4}$ $(\frac{4}{8})$

4. $\frac{\square}{8} = \frac{1}{2}$ $(\frac{4}{8})$

5. $\frac{3}{4} = \frac{\square}{8}$ $(\frac{6}{8})$

Activity 3:

- Say: **Complete Activity 3 in your LAB.**

1. Label all the missing fractions on this fraction wall.

whole								
$\frac{1}{3}$			$(\frac{1}{3})$			$\frac{1}{3}$		
$(\frac{1}{6})$		$(\frac{1}{6})$		$\frac{1}{6}$		$(\frac{1}{6})$		$(\frac{1}{6})$
$\frac{1}{9}$	$(\frac{1}{9})$	$(\frac{1}{9})$	$(\frac{1}{9})$	$(\frac{1}{9})$	$(\frac{1}{9})$	$(\frac{1}{9})$	$(\frac{1}{9})$	$\frac{1}{9}$

2. Use your fraction wall to help you fill in the missing digits

a. $\frac{1}{3} = \frac{\square}{6}$ $(\frac{2}{6})$

b. $\frac{1}{3} = \frac{\square}{9}$ $(\frac{3}{9})$

c. $\frac{2}{6} = \frac{\square}{9}$ $(\frac{3}{9})$

d. $\frac{2}{3} = \frac{\square}{6}$ $(\frac{4}{6})$

e. $\frac{3}{9} = \frac{\square}{3}$ $(\frac{1}{3})$

f. $\frac{\square}{3} = \frac{9}{9}$ $(\frac{3}{3})$

5 HOMEWORK ACTIVITY (5 MINUTES)

Explain to learners what they need to do for homework.
Read the questions in the LAB with learners. Make sure all the learners understand what to do.

This fraction wall shows the whole, fifths and tenths

<table>
<tr><td colspan="10">whole</td></tr>
<tr><td colspan="2">$\frac{1}{5}$</td><td colspan="2">$\frac{1}{5}$</td><td colspan="2">$\frac{1}{5}$</td><td colspan="2">$\frac{1}{5}$</td><td colspan="2">$\frac{1}{5}$</td></tr>
<tr><td>$\frac{1}{10}$</td><td>$\frac{1}{10}$</td><td>$\frac{1}{10}$</td><td>$\frac{1}{10}$</td><td>$\frac{1}{10}$</td><td>$\frac{1}{10}$</td><td>$\frac{1}{10}$</td><td>$\frac{1}{10}$</td><td>$\frac{1}{10}$</td><td>$\frac{1}{10}$</td></tr>
</table>

Use the fraction wall to help you find the missing digits:

1. $\frac{1}{5} = \frac{\square}{10}$ $\left(\frac{2}{10}\right)$

2. $\frac{\square}{5} = \frac{4}{10}$ $\left(\frac{1}{5}\right)$

3. $\frac{3}{5} = \frac{\square}{10}$ $\left(\frac{6}{10}\right)$

4. $\frac{\square}{5} = \frac{8}{10}$ $\left(\frac{4}{5}\right)$

5. $\frac{5}{5} = \frac{\square}{10}$ $\left(\frac{10}{10}\right)$

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 learned that a fraction is a part of a whole.**
We have also learned to identify fractions and that equivalent fractions are fractions that have the same value.

Lesson 14: Compare fractions

Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.

CAPS topics: 1.2 Common fractions

Lesson Objective: Learners will be able to compare fractions with the same denominators or denominators which are a multiple of one another and use the inequality symbols correctly.

Lesson Vocabulary: compare, greater than, less than, equal to, equivalent fractions

Teacher Resources:

- Cut out fraction strips showing halves, thirds, quarters (fourths), fifths, sixths, sevenths and eighths labelled 1 to 7
- Cut out fraction circles showing halves, thirds, quarters (fourths), fifths, sixths, sevenths and eighths labelled A to G
- Cut out the A3 fraction strip and number line.

Date: Week Day

1 MENTAL MATHS (5 MINUTES)

Read each fraction to your partner

		Answer			Answer
1	$\frac{1}{3}$	one third	**6**	$\frac{3}{5}$	three fifths
2	$\frac{1}{4}$	one quarter	**7**	$\frac{2}{3}$	two thirds
3	$\frac{1}{5}$	one fifth	**8**	$\frac{4}{5}$	four fifths
4	$\frac{3}{4}$	three quarters	**9**	$\frac{2}{4}$	two quarters
5	$\frac{2}{5}$	two fifths	**10**	$\frac{5}{5}$	five fifths

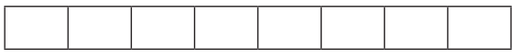
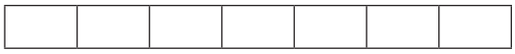
2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Revise the concept of fractions by playing the matching game.
  Use the fraction strips (halves to eighths) and the fraction circles (also halves to eighths).
  Stick the fraction strips (on the board and give one fraction circle to each of seven learners.

  STEP 1:
  Say: **If you have a fraction circle, come to the board and place it next to the fraction strip that shows the same fraction.** (Correct positions are shown below)

  Once all the circles have been stuck up, ask: **Are the fraction circles next to the correct fraction strips?** (Allow time for a class discussion. Correct any errors if necessary.)

STEP 2:
Once the fraction circles have been placed correctly, ask: **What fractions are shown by the fraction strips and the fraction circles?** (Answers are given below)

	Answers
1. 	 B — Thirds
2. 	 D — Fifths
3. 	 G — Eighths
4. 	 A — Halves
5. 	 C — Quarters or fourths
6. 	 E — Sixths
7. 	 F — Sevenths

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 13 are provided in Lesson 13.
Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (35 MINUTES)

So far, we have worked with the length model of fractions (fraction strips) and the area model of fractions (fraction circles). In this lesson we work with number lines which are another example of the length model

Also in this lesson, learners find out how to compare and order fractions. When learners compare two fractions, they say whether one fraction is greater than, less than, or equal to the other fraction. The symbols used when comparing fractions are > (is greater than e.g. 9 > 2), < (is less than e.g. 4 < 7) and = (is equal to e.g. 8 = 8).

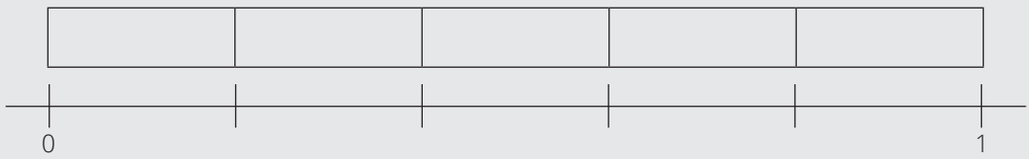
Say: **Today we are learning to compare fractions.**

Activity 1: Whole class activity and learners work on their own

- Use the fraction strip and blank number line given in the Teacher Resource.
  The learners use the fraction strip and blank number line in the LAB.

- Say: **We want to write fractions on a number line.**
  Say: **We do this by comparing fraction strips and number lines.**

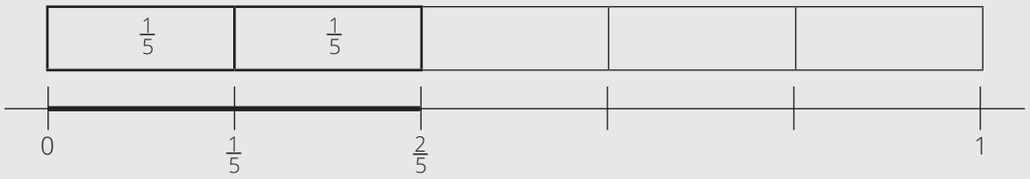
A Ask: **What number do you write on the first mark on the number line?** (0)
What number do you write on the last mark on the number line? (1)
Write the 0 and 1 on the number line.



B Ask: **Into how many parts is the whole fraction strip divided?** (5)
Ask: **What fraction of the whole is one part?** ($\frac{1}{5}$)
Say: **Write $\frac{1}{5}$ on the fraction strip.** You also write $\frac{1}{5}$ on the fraction strip.
Say: **Shade $\frac{1}{5}$ on the number line.**
You also shade in $\frac{1}{5}$ on the number line on the board.
Ask: **Where do we write $\frac{1}{5}$ on the number line?** (The learners should write $\frac{1}{5}$ on their number line in the LAB. You also write $\frac{1}{5}$ on your number line.)

C Say: **Write another $\frac{1}{5}$ on the fraction strip in your LAB.**
You also write another $\frac{1}{5}$ on the fraction strip on the board.
Ask: **What fraction of the whole is two parts?** ($\frac{2}{5}$)
Say: **Shade another $\frac{1}{5}$ on the number line.**

Ask: **Where do we write $\frac{2}{5}$ on the number line?** (The learners should write $\frac{2}{5}$ on their number line. You also write $\frac{2}{5}$ on your number line.)



D Say: **Write another $\frac{1}{5}$ on the fraction strip in your LAB.**

You also write another $\frac{1}{5}$ on the fraction strip on the board.

Ask: **What fraction of the whole is three parts?** ($\frac{3}{5}$)

Ask: **What fraction goes at the next mark on the number line?**
(The learners should be able to write $\frac{3}{5}$ on the number line)

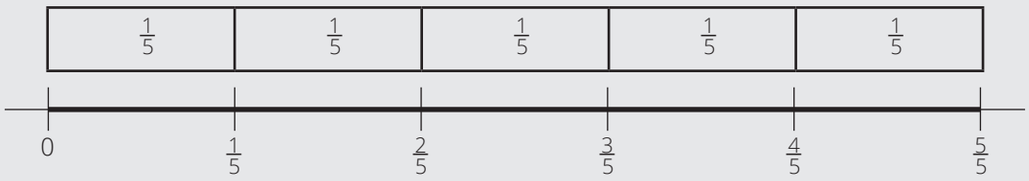
E Say: **Write another $\frac{1}{5}$ on the fraction strip in your LAB.**

You also write another $\frac{1}{5}$ on the fraction strip on the board.

Ask: **What fraction of the whole is four parts?** ($\frac{4}{5}$)

Ask: **What fraction goes at the next mark on the number line?**
(The learners should be able to write $\frac{4}{5}$ on the number line)

F Say: **Write another $\frac{1}{5}$ on the fraction strip in your LAB.**
You also write another $\frac{1}{5}$ on the fraction strip on the board.
Ask: **What fraction of the whole is five parts?** ($\frac{5}{5}$)
Say: **Shade in $\frac{5}{5}$ of he number line in your LAB.**
You also shade in $\frac{5}{5}$ of the number line on the board.
Say: **The number line is now shaded the whole way between 0 and 1.**
Say: **We have a 1 at the end of the number line.**
What other fraction can we write at 1? ($\frac{5}{5}$)
The learners write $\frac{5}{5}$ on the number line in their LAB.



- Ask: **How many $\frac{1}{5}$s do you need to make 1?** (five one fifths).
  Write $\frac{5}{5} = 1$ on the board.

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

- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Correct Activity 2 with learners so that they can receive immediate feedback.

Use your number line to help you. Write < or > or = between the two fractions.

a. $\frac{1}{5}$ (<) $\frac{2}{5}$

b. $\frac{5}{5}$ (>) $\frac{4}{5}$

c. $\frac{3}{5}$ (>) $\frac{1}{5}$

d. 1 (=) $\frac{5}{5}$

e. $\frac{2}{5}$ (<) 1

Activity 2: Learners work in pairs

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

- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Correct Activity 2 with learners so that they can receive immediate feedback.

1. Write the fraction shaded on each number line:

Answers

a.

$(\frac{4}{5})$

b.

$(\frac{5}{10})$

c.

$(\frac{3}{8})$

d.

$(\frac{2}{4})$

e.

$(\frac{2}{3})$

f.

$(\frac{4}{6})$

2. Use your number lines in question 1 to compare these fractions.
Fill in either < or > or = between the two fractions.

a. $\frac{4}{5}$ (>) $\frac{5}{10}$

b. $\frac{3}{8}$ (<) $\frac{2}{4}$

c. $\frac{2}{3}$ (=) $\frac{4}{6}$

3. **a.** How many equal parts in this whole?

(7 parts in the whole)

b. On the number line, shade in $\frac{2}{7}$ of the whole.

(7 parts in the whole)

c. On the number line, shade in $\frac{5}{7}$ of the whole.

(7 parts in the whole)

d. Use your number lines to compare these fractions.

Which is bigger: $\frac{2}{7}$ or $\frac{5}{7}$?

($\frac{5}{7}$ is bigger)

e. Fill in either < or > or = between the two fractions.

$\frac{2}{7}$ (<) $\frac{5}{7}$

5 HOMEWORK ACTIVITY (5 MINUTES)

Explain to learners what they need to do for homework.

Read the questions in the LAB with learners. Make sure all the learners understand what to do.
Encourage learners to refer to their fraction walls.

1 Write the fractions on the number lines

a $\frac{1}{8}$

b $\frac{7}{8}$

c $\frac{1}{4}$

2 **a.** Which fraction is the smallest: $\frac{1}{8}$ or $\frac{7}{8}$ or $\frac{1}{2}$? ($\frac{1}{8}$ is the smallest fraction)

b. Use your number lines to explain why it is the smallest fraction of the three fractions.

(Answers will vary. Some possible answers:

$\frac{1}{8}$ is the shortest/ smallest line on the number lines. **The wholes are all the same size.**

$\frac{1}{8}$ is one part of eight parts, while $\frac{1}{4}$ is one part of four parts. The wholes are all the same size).

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 learned about the size of fractions.**
We can compare fractions using the same size number lines or using the fraction wall.

Lesson 15: Order fractions

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 1.2 Common fractions
Lesson Objective: Learners will be able to order and compare fractions and use the inequality symbols correctly.
Lesson Vocabulary: greater than, less than, equal to, equivalent fractions
Teacher Resources: 2 fraction circles; A3 poster of fractions on number lines, flashcards (>; <; =; equivalent fractions), ruler
Learner Resources: Ruler
Date: Week Day

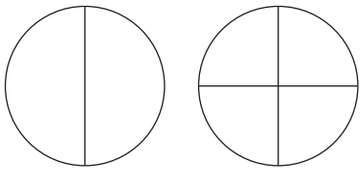
1 MENTAL MATHS (5 MINUTES)

Read each fraction to your partner

		Answer			Answer
1	$\frac{4}{6}$	four sixths	**6**	$\frac{2}{7}$	two sevenths
2	$\frac{3}{8}$	three eighths	**7**	$\frac{1}{9}$	one ninth
3	$\frac{5}{9}$	five ninths	**8**	$\frac{1}{6}$	one sixth
4	$\frac{7}{9}$	seven ninths	**9**	$\frac{5}{6}$	five sixths
5	$\frac{7}{7}$	seven sevenths	**10**	$\frac{3}{9}$	three ninths

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Write: 'Which fraction is bigger?' and 'Which is fraction is smaller?' on the board. Paste fraction circles A and C on the board.



- Say: **These pictures show two cakes.**
  Ask: **Are these two cakes the same size?** (Yes)
  Ask: **Into how many parts has the first cake been cut into?** (2)
  Ask: **Are these two pieces the same size?** (Yes)
  Ask, pointing at the cake showing halves and the cake showing quarters:
  Would you rather have a piece of this cake, or a piece of this cake?
  (Learners will probably say a piece of the cake cut showing halves)
  Ask: **Why?** (The piece is bigger)

- Ask, pointing at the circle showing halves:
  What fraction of the whole is one piece of cake? ($\frac{1}{2}$)
  Ask, pointing at the circle showing quarters:
  What fraction of the whole is one piece of cake? ($\frac{1}{4}$)
- Ask: **Is one half of this cake bigger than a quarter of the same-sized cake?** (Yes)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

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

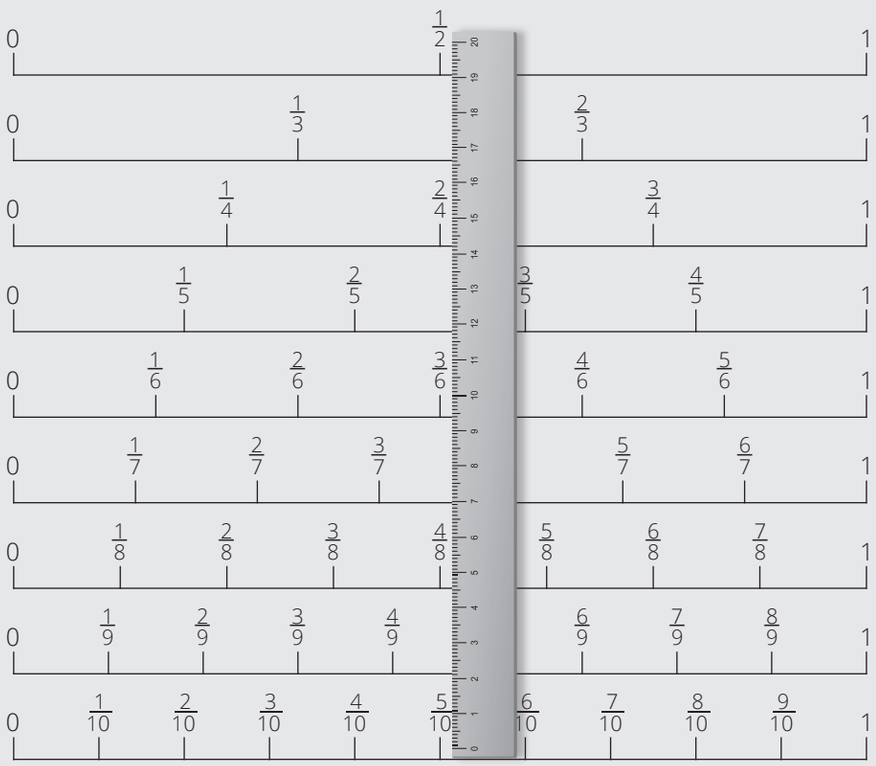
4 LESSON CONTENT – CONCEPT DEVELOPMENT (35 MINUTES)

In this lesson, learners continue to find out how to compare fractions with same denominators and multiples of one another using the inequality signs (< and >) and the equal sign (=). Learners also order fractions from smallest to biggest or biggest to smallest.

Say: **Today we are learning more about comparing fractions, and to list fractions in order.**

Activity 1: Whole class activity and learners work on their own

- Stick the poster of fractions on a number line on the board.
  The learners have this diagram in their LAB.



- Ask, as you point to the top number line:
  Into how many equal parts has this number line been cut? (Two)
  Ask: **What do we call each equal part?** (A half)

- Say: **Let's use our number lines to find the fractions that are equivalent to a half.**
  Demonstrate, using a ruler or your finger, to show how to find other fractions that are equal to a half.

- Say: **In your LAB, write down all the fractions on the number lines that are equal to a half.**
  Ask: **Which fractions are the same length as a half?** ($\frac{2}{4}$; $\frac{3}{6}$; $\frac{4}{8}$; $\frac{5}{10}$)
  Say: **Write the fractions that you found like this:** $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10}$
  Ask: **What do we call fractions that are the same value?** (Equivalent fractions)
  Stick the equivalent fractions flashcard on the board.

- Say: **Let's use the number lines to compare some fractions. Remember that when we compare, we see which is bigger and which is smaller.**

- Write $\frac{2}{3}$.....$\frac{1}{2}$ on the board.
  Ask: **Is $\frac{2}{3}$ greater than or less than $\frac{1}{2}$?** (Greater than)
  Say: **Write this comparison using the greater than or less than symbol in your LAB:** ($\frac{2}{3} > \frac{1}{2}$)

- Write $\frac{1}{2}$.....$\frac{2}{3}$ on the board.
  Ask: **Is $\frac{1}{2}$ greater than or less than) $\frac{2}{3}$?** (Less than)
  Say: **Write this comparison using the greater than or less than symbol in your LAB:** ($\frac{1}{2} < \frac{2}{3}$)

Activity 2: Learners work in pairs

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

- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Correct Activity 2 with learners so that they can receive immediate feedback.

1. Use the diagram in Activity 1. It shows fractions on a number line.

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

a. $\frac{1}{4}$ (<) $\frac{3}{8}$

b. $\frac{3}{4}$ (=) $\frac{6}{8}$

c. $\frac{4}{5}$ (<) $\frac{9}{10}$

d. $\frac{3}{5}$ (=) $\frac{6}{10}$

e. $\frac{1}{4}$ (>) $\frac{1}{8}$

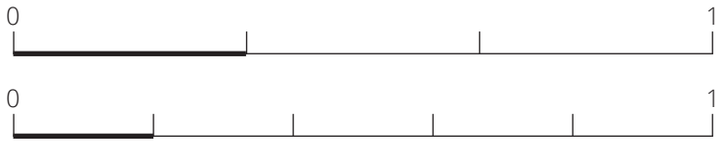
f. $\frac{1}{3}$ (=) $\frac{3}{9}$

g. $\frac{6}{7}$ (>) $\frac{6}{8}$

h. 1 (=) $\frac{10}{10}$

i. $\frac{6}{9}$ (=) $\frac{4}{6}$

2. **a.** What fraction of each number line has been shaded in?



$\frac{1}{3}$ and $\frac{1}{5}$

b. Use the number lines to decide whether you put < or > or = between the two fractions.

$\frac{1}{3}$ (>) $\frac{1}{5}$

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

- Use the poster of fractions on a number line stuck on the board.
  The learners have this diagram in Activity 3 in their LAB.

- Say: **When we order fractions, we write them from smallest to biggest or biggest to smallest.**

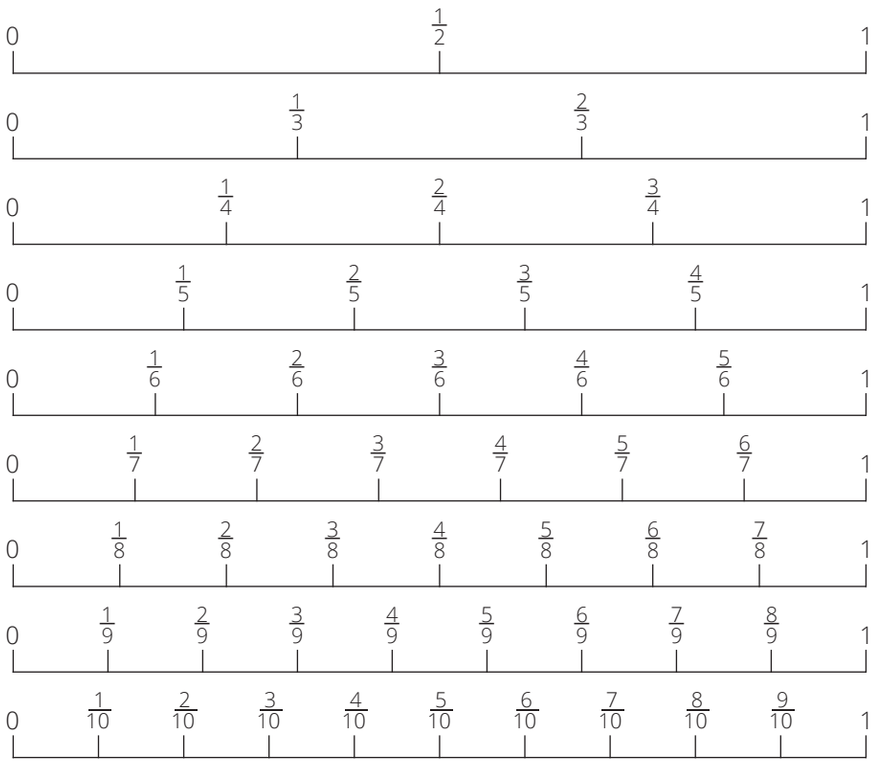
- Say, as you write the fractions on the board:
  Write the fractions $\frac{3}{4}$; $\frac{3}{9}$ and $\frac{3}{7}$ in order from smallest to biggest. ($\frac{3}{9}$; $\frac{3}{7}$; $\frac{3}{4}$)

- Say, as you write the fractions on the board:
  Write the fractions $\frac{3}{10}$; $\frac{3}{5}$ and $\frac{1}{6}$ in order from biggest to smallest. ($\frac{3}{5}$; $\frac{3}{10}$; $\frac{1}{6}$)

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

- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Correct Activity 3 with learners so that they can receive immediate feedback.

Use the diagram showing fractions on a number line.



a. Write the fractions $\frac{7}{8}$; $\frac{2}{3}$; $\frac{1}{2}$ in order from smallest to biggest.

($\frac{1}{2}$; $\frac{2}{3}$; $\frac{7}{8}$)

b. Write the fractions $\frac{5}{5}$; $\frac{5}{6}$; $\frac{4}{5}$ in order from biggest to smallest.

($\frac{5}{5}$; $\frac{5}{6}$; $\frac{4}{5}$)

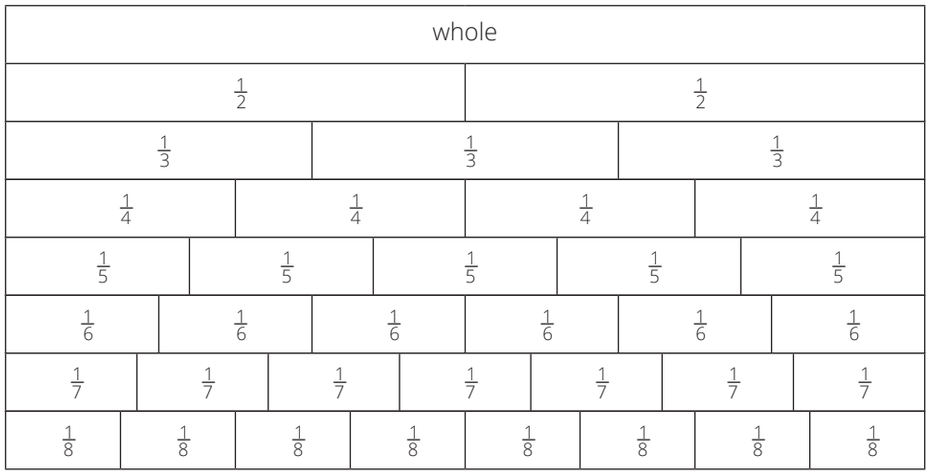
5 HOMEWORK ACTIVITY (5 MINUTES)

Explain to learners what they need to do for homework.

Read the questions in the LAB with learners. Make sure all the learners understand what to do.

Do Question 1 a. with the learners. Point out that this is fraction wall, which is different from the diagram of number lines they used in Activities 1, 2 and 3.

Use the fraction wall and a ruler to help you answer the questions.



1 Draw a circle around each fraction that is smaller than one half.

a $\frac{1}{5}$ **b** $\frac{5}{6}$ **c** $\frac{4}{8}$ **d** $\frac{1}{7}$ **e** $\frac{1}{6}$ **f** $\frac{1}{4}$

2 Write the fractions in Question 1 in order from smallest to biggest.

ANSWER: $\frac{1}{7}$; $\frac{1}{6}$; $\frac{1}{5}$; $\frac{1}{4}$; $\frac{4}{8}$; $\frac{5}{6}$

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 learned to compare fractions and to order fractions according to their size.**

Lesson 16: Fractions bigger than 1

Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.

CAPS topics: 1.2 Common fractions

Lesson Objective: Learners will be able to identify improper fractions and mixed numbers, will be able to convert improper fractions to mixed numbers, and to convert mixed numbers to improper fractions.

Lesson Vocabulary: proper fraction, improper fraction, mixed number, convert, width, tape

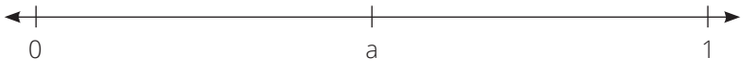
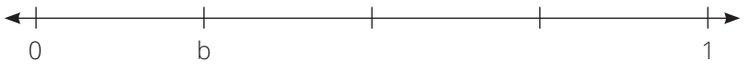
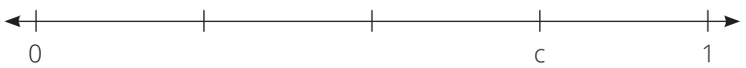
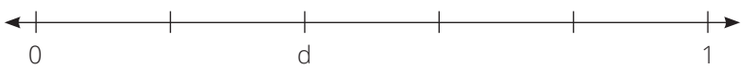
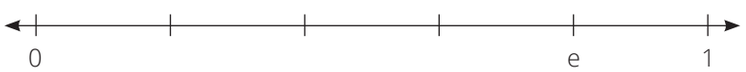
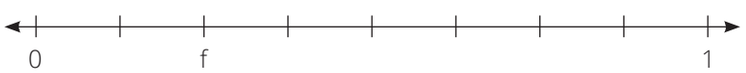
Teacher Resources:

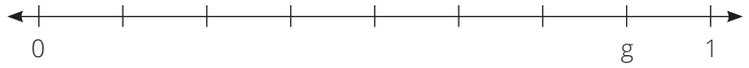
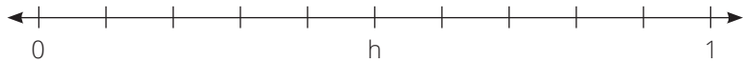
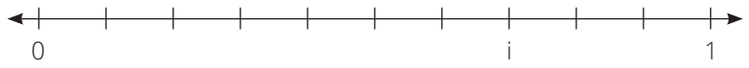
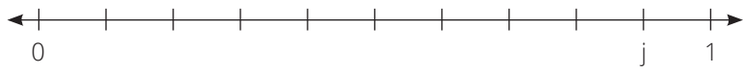
- A3 poster of a fraction wall
- 5 strips more than 1 m long. (You can use flip chart paper, newspaper, strips cut from food bags, string, wool or something like that.)
- Flash cards for each of the fractions $\frac{1}{4}$; $\frac{3}{5}$; $\frac{4}{4}$; $\frac{5}{5}$; $\frac{5}{3}$; $\frac{7}{4}$
- One number line marked in fifths from 0 to 3; another number line marked in thirds between 0 and 3
- Prestik

Learner Resources: Each learner (or pair or group) needs 3 strips of paper. Make the strips by folding an A4 piece of paper into strips about 3 cm wide. Glue

Date: Week Day

1 MENTAL MATHS (5 MINUTES)

		Answer
1	Name the fraction at a. on the number line 	a = $\frac{1}{2}$
2	Name the fraction at b. on the number line 	b = $\frac{1}{4}$
3	Name the fraction at c. on the number line 	c = $\frac{3}{4}$
4	Name the fraction at d. on the number line 	d = $\frac{2}{5}$
5	Name the fraction at e. on the number line 	e = $\frac{4}{5}$
6	Name the fraction at f. on the number line 	f = $\frac{2}{8}$

7	Name the fraction at g. on the number line 	g = $\frac{7}{8}$
8	Name the fraction at h. on the number line 	h = $\frac{5}{10}$
9	Name the fraction at i. on the number line 	i = $\frac{7}{10}$
10	Name the fraction at j. on the number line 	j = $\frac{9}{10}$

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Stick the poster of the fraction wall on the board.
- Ask: **Are the following True or False?**
  - $\frac{1}{4}$ is more than $\frac{1}{8}$ (True)
  - $\frac{1}{3}$ is equal to $\frac{3}{6}$ (False)
  - $\frac{1}{8}$ is less than $\frac{1}{5}$ (True)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 15 are provided in Lesson 15.
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 find out about fractions bigger than one (improper fractions) and mixed numbers. Learners also learn to convert from improper fractions to mixed numbers, and from mixed numbers to improper fractions.

Say: **Today we are learning about fractions that are greater than one.**

Activity 1: Whole class activity

- You will need the demonstration-size tape strips for Activity 1 (cut out the strips before the lesson).
  With the big paper strips, make $\frac{1}{3}$ and $\frac{1}{5}$ pieces before the lesson.
- Say: **We are going to work through Activity 1 together.**

- Show the 1 m strip to the learners and say:
  I have a strip that is 1 m long.
  How can I use it to make pieces that are $\frac{1}{4}$ m long?
  (To get 4 equal parts, fold it in half twice)
  Follow the learners' instructions and fold the 1 m strip into 4 equal pieces.
  Write $\frac{1}{4}$ m on each part.

$\frac{1}{4}$ m	**$\frac{1}{4}$ m**	**$\frac{1}{4}$ m**	**$\frac{1}{4}$ m**

  Cut it along the folded lines to make four $\frac{1}{4}$ m strips.
  Say: **Fold two of your paper strips into $\frac{1}{4}$s.**

- While learners make their own $\frac{1}{4}$s, fold another 1 m strip into quarters.

- Stick the 1 m strip on the board.

1 m

- Stick the $\frac{1}{4}$m pieces underneath the 1 m strip like this:

1 m				
$\frac{1}{4}$ m	**$\frac{1}{4}$ m**	**$\frac{1}{4}$ m**	**$\frac{1}{4}$ m**	**$\frac{1}{4}$ m**

  Ask: **How many $\frac{1}{4}$ metre pieces are there now?** (5)
  Ask: **How can we write five quarters as a fraction?** (5 quarters of a metre or 5 fourths of a metre or $\frac{5}{4}$ m)
  Write $\frac{5}{4}$ m on the board and read it with learners.

- Say: **Stick a whole strip in your classwork book and put 5 quarters under the whole.**
  Ask: **Are 5 quarters longer than 1 m?** (Yes)

- Ask: **I have taken another 1 m and have folded it into 3 equal parts.**
  What fraction of a metre is each part? ($\frac{1}{3}$ m)
  Stick the $\frac{1}{3}$ m pieces on the board one by one with the learners counting as you stick them up.

1 m		
$\frac{1}{3}$ **m**	$\frac{1}{3}$ **m**	$\frac{1}{3}$ **m**

  Ask: **How many $\frac{1}{3}$ metres are there now?** (3)
  Ask: **Who can come to the board to stick five thirds of a metre on the board?**

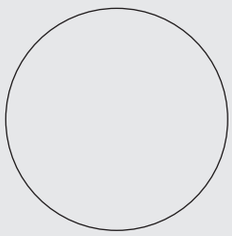
1 m				
$\frac{1}{3}$ **m**	$\frac{1}{3}$ **m**	$\frac{1}{3}$ **m**	$\frac{1}{3}$ **m**	$\frac{1}{3}$ **m**

  Ask: **How many $\frac{1}{3}$ metres are there?** (5)
  Write $\frac{5}{3}$ m on the board and read it with learners.
  Ask: **Is 5 thirds longer than 1 m?** (Yes)

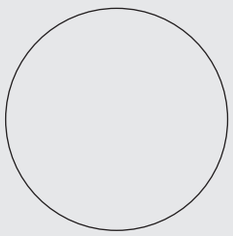
Activity 2: Whole class activity and learners work on their own

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

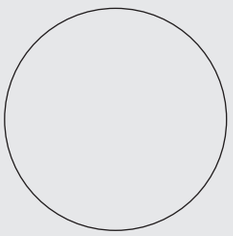
- Stick the following fraction cards from the Teacher's Resource Pack on the board:
  $\frac{1}{4}$; $\frac{3}{5}$; $\frac{4}{4}$; $\frac{5}{5}$; $\frac{7}{3}$; $\frac{7}{4}$
- Draw three circles on the board and label them as shown:



Fractions less than 1



Fractions equal to 1



Fractions greater than 1

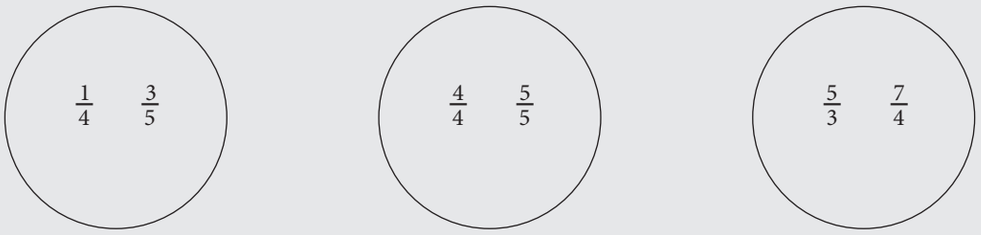
- Say: **Go to the circles in your LAB.**

- Stick the $\frac{1}{4}$ fraction card on the board.
  Say: **Write this fraction in the correct circle in your LAB.**
  Is it less than 1, equal to 1 or greater than 1? (Less than 1)
  Stick the $\frac{1}{4}$ fraction card in the 'Fractions less than 1' circle.

- Say: **Now write each of the fractions in the correct circle in your LAB.**

- Once they have finished, let some learners stick the rest of the fraction cards in the circles on the board so that everyone can check whether they have put their fractions in the correct circles in their books.

ANSWERS:



Fractions less than 1	**Fractions equal to 1**	**Fractions greater than 1**
PROPER FRACTIONS	**IMPROPER FRACTIONS**	**IMPROPER FRACTIONS**

- Say, as you add the labels to the circles on the board:
  Fractions that are less than 1 are called proper fractions.
  Fractions that are equal to 1 or greater than 1are called improper fractions.

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

- Read the question in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Correct Activity 2 with learners so that they can receive immediate feedback.

Draw a circle around the proper fractions and a square around the improper fractions.

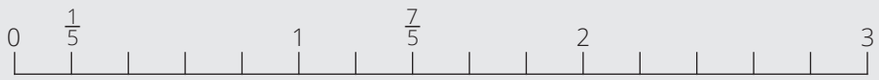
$\frac{1}{5}$ $\frac{2}{2}$ $\frac{7}{6}$ $\frac{6}{7}$ $\frac{11}{6}$

Activity 3: Whole class activity and learners work in pairs

- Ask, as you write the fraction on the board: **What type of fraction is $\frac{7}{5}$?**
  (Improper fraction)
  Ask: **1 and what number can make $\frac{7}{5}$?** (The answer is $\frac{2}{5}$ but learners might not be able to give the answer at this stage).

- Say: **Write $\frac{7}{5}$ on the number line in your LAB.**

- Stick the blank number line on the board and write the fractions given below either above it or below it on the board.



- Say, demonstrating on your number line:
  Count in fifths, starting at 0, until you reach 7 fifths.
  Say: **Can you see that 7 fifths is at 1 plus 2 fifths?**

  Say as you write $1\frac{2}{5}$ on the board: **We write $1\frac{2}{5}$ and we read it '1 and $\frac{2}{5}$'**

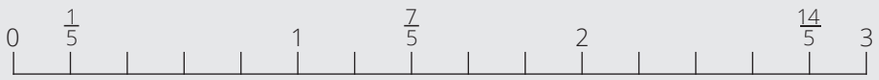
  Let the learners write $1\frac{2}{5}$ next to $\frac{7}{5}$ on the number line in their LAB.

  Say, as you write on the board: $1\frac{2}{5} = \frac{7}{5}$: **One and two fifths is equal to seven fifths.**

  Say: **We call a number with a whole number and a fraction a 'mixed number'.**
  Read 'Mixed number' several times with learners and let them write it in their classwork books.

- Say: **Fill in $\frac{14}{5}$ on the number line in your LAB.**

  Say: **Let's count 14 fifths on the number line on the board.**



  Ask: **What number and what fraction can make $\frac{14}{5}$?** (2 and $\frac{4}{5}$)

  Ask: **How do we write 2 and $\frac{4}{5}$? Write it in your LAB.** ($2\frac{4}{5}$)

  Write $2\frac{4}{5}$ on the board so that the learners can check if their answer is correct.

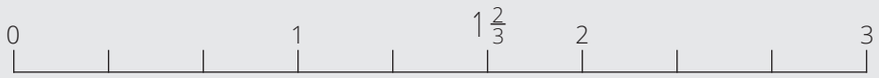
  Say, as you write on the board: $2\frac{4}{5} = \frac{14}{5}$: **Two and four fifths is equal to fourteen fifths.**

- Say: **Let's use a number line to write $1\frac{2}{3}$ as an improper fraction.**

- Erase the numbers on the number line and write numbers on it as below.
  The learners use the number line in their LAB.

- Say: **Write $1\frac{2}{3}$ on your number line.**

  Once the learners have finished, say, as you count along the number line:
  $1\frac{2}{3}$ should be written here:



  Say, as you 'count' along the number line in thirds:
  There are five thirds in one and two thirds.
  Say, as you write on the board: $1\frac{2}{3} = \frac{5}{3}$: **One and two thirds is equal to five thirds.**

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

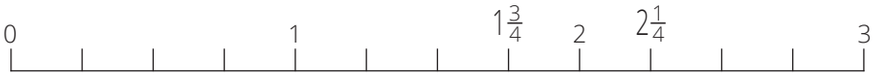
- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
  Correct Activity 3 with learners so that they can receive immediate feedback.

1. Use the number line to help you write the following improper fractions as mixed numbers:

a. $\frac{7}{5} = (1\frac{2}{5})$

b. $\frac{9}{5} = (1\frac{4}{5})$

2. Use the number line to help you write the following mixed numbers as improper fractions:



a. $1\frac{3}{4} = (\frac{7}{4})$

b. $2\frac{1}{4} = (\frac{9}{4})$

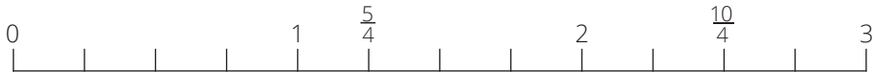
5 HOMEWORK ACTIVITY (5 MINUTES)

Explain to learners what they need to do for homework.

Read the questions in the LAB with learners. Make sure all the learners understand what to do.

Answers in brackets.

1 Use the number line to help you convert the improper fractions into mixed numbers.



a $\frac{5}{4} = (1\frac{1}{4})$

b $\frac{10}{4} = (2\frac{2}{4})$

2 Use the number line to help you convert the improper fractions as mixed numbers:

a $\frac{8}{5} = (1\frac{3}{5})$

b $\frac{6}{5} = (1\frac{1}{5})$

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 learned about proper fractions, improper fractions and mixed numbers. We also learned to:**

- **convert improper fractions to mixed numbers**
- **convert mixed numbers to improper fractions.**

Lesson 17: Consolidation

Teacher's notes
This lesson allows for consolidation of the content of the previous four lessons.
CAPS topics: 1.2 Common fractions
Lesson Objective: Learners will revise equivalent fractions, comparing and ordering fractions, proper fractions, improper fractions and mixed numbers.
Lesson Vocabulary: equivalent fraction, compare, order, proper fraction, improper fraction, mixed number.
Teacher resources: A3 poster of fractions on number lines.
Date: Week Day

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

The main topics covered this week were equivalent fractions, comparing and ordering fractions, proper fractions, improper fractions and mixed numbers.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

- Some learners struggle to see a fraction as an amount. This could, in part, be due to the incorrect use of fraction language. For example, if we say one over two, rather than one half, some learners might see $\frac{1}{2}$ as two separate numbers.
- When comparing fractions, some learners simply look at the size of the denominator, saying 'the bigger the bottom number, the bigger the fraction.'

3 CORRECT HOMEWORK (5 MINUTES)

The answers to the Homework Activity for Lesson 16 are provided in Lesson 16.

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 equivalent fractions, comparing and ordering fractions, proper fractions, improper fractions and mixed numbers.**

- You could use this time for learners to complete classwork or homework activities as necessary.
- You could 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

Refer to the following table. Select additional activities from the textbook/s you have. Use the answers given in the Teacher's Guide to correct the work.

	Fabulous	Oxford Headstart	Oxford Successful	Platinum	Premier	Sasol Inzalo	Solutions for All	Study & Master	Viva
LB	109-114	107-117	86-95	62-67	64-68	136-146	98-106	114-122	67-73
	165-166	183-190	147-152	108-112	120-129	211-224	179-188	188-195	120-123
TG	75-78	139-146	96-101	53-55	32-34	149-160	74-79	156-173	39-42
	128-130	224-229	138-140	87-89	61-65	237-254	144-149	245-256	64-66

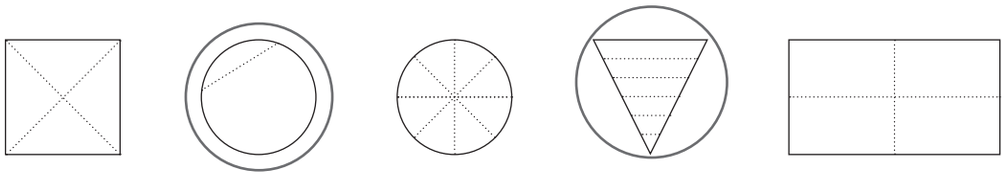
OR, learners could complete the Consolidation Activity in their LAB.

Read the questions in the LAB with learners. Make sure all the learners understand what to do.

Stick the A3 poster of fractions on number lines on the board.

Consolidation Activity

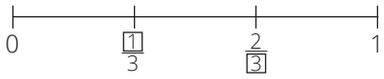
1 **a** Draw a circle around the shapes that have not been divided into fractions.



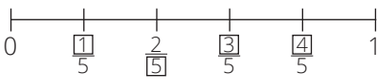
b Explain why you say the shapes have not been divided into fractions.
(The circled shapes have not been divided into equal parts).

2 Complete the fractions on each number line.

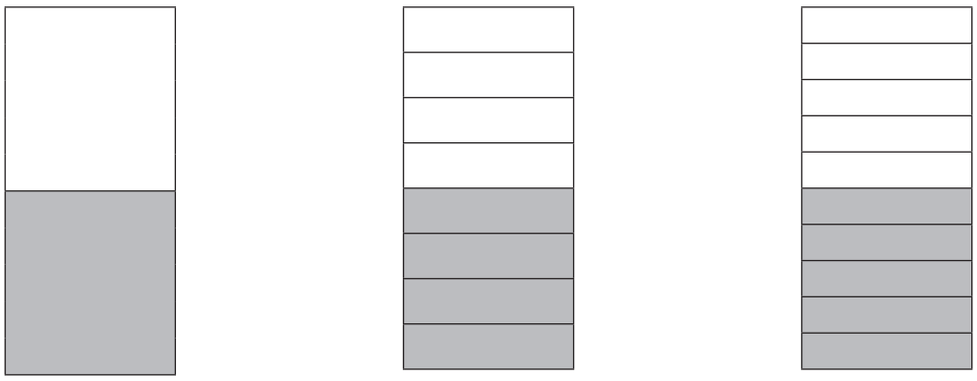
a.



b.



3 **a.** Complete the equivalent fraction below each drawing.



$\frac{1}{2}$ = $\frac{4}{8}$ = $\frac{5}{10}$

b The wholes are all the same size and the fractions all represent the same amount. Are these fractions improper fractions, equivalent fractions or mixed numbers? (Equivalent fractions)

4 Use the number line to help you write the following improper fractions as mixed numbers:

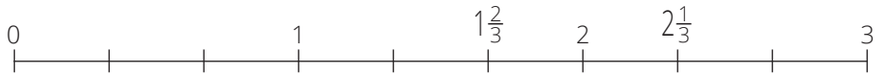
a. $\frac{7}{6} = (1\frac{1}{6})$

b. $\frac{11}{6} = (1\frac{5}{6})$

5 Use the number line to help you convert the following mixed numbers into improper fractions:

$1\frac{2}{3} = (\frac{5}{3})$

$2\frac{1}{3} = (\frac{7}{3})$



6 Fill in >; < or = to make the number sentences true.

a $\frac{1}{2}$ (=) $\frac{4}{8}$	**b** $\frac{3}{6}$ (<) $\frac{2}{3}$	**c** $\frac{8}{8}$ (=) $\frac{4}{4}$
d $\frac{3}{4}$ (>) $\frac{5}{8}$	**e** $\frac{3}{10}$ (>) $\frac{1}{5}$	**f** $\frac{8}{9}$ (<) $1\frac{1}{9}$
g $1\frac{2}{4}$ (=) $1\frac{1}{2}$	**h** $\frac{2}{2}$ (=) $\frac{10}{10}$	**i** $\frac{5}{9}$ (<) $\frac{2}{3}$

5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

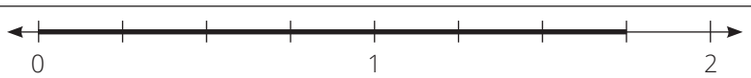
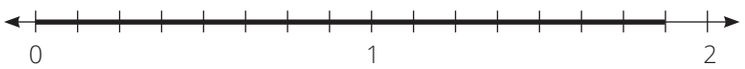
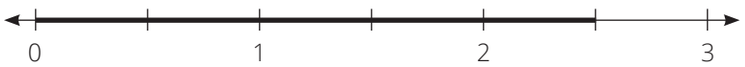
Call the whole class to attention and summarise the key concepts of the lesson.

Say: **Today we have revised equivalent fractions, comparing and ordering fractions, proper fractions, improper fractions and mixed numbers.**

Lesson 18: Adding fractions (1)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 1.2 Common fractions
Lesson Objective: Learners will be able to add fractions with the same denominator.
Lesson Vocabulary: add, kilogram (kg), improper fraction, distance, mixed number, metre (m)
Teacher Resources: Number line divided in eighths, another one divided in sixths
Learner Resources: Each learner will a strip of paper to fold to make a fraction strip. (Make these by folding an A4 piece of paper into strips about 3 cm wide.)
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

Write as an improper fraction:		
1	$1\frac{3}{4} = (\frac{7}{4})$	
2	$2\frac{1}{3} = (\frac{7}{3})$	
3	$1\frac{3}{5} = (\frac{8}{5})$	
Write as a mixed number		
4	$\frac{15}{8} = (1\frac{7}{8})$	
5	$\frac{5}{2} = (2\frac{1}{2})$	

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Say: **Write the answers in your classwork book.**
- Say, as you write on the board: **Change $1\frac{3}{4}$ to an improper fraction.** ($\frac{7}{4}$)
- Say, as you write on the board: **Change $\frac{7}{5}$ to a mixed number.** ($1\frac{2}{5}$)
- If learners cannot convert improper fractions and mixed numbers, help them as below:

  Ask: **How do we change $1\frac{3}{4}$ to an improper fraction?**

  Write on the board: $1\frac{3}{4} = \frac{4}{4} + \frac{3}{4}$

  Ask: **How many $\frac{1}{4}$s altogether?** ($\frac{7}{4}$)

  Ask: **How do we change $\frac{7}{5}$ to a mixed number?**

  Write on the board: $\frac{7}{5} = \frac{5}{5} + \frac{2}{5} = \mathbf{1}$

3 CORRECT HOMEWORK ACTIVITY

The previous lesson was a consolidation lesson. There is no homework to correct.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (40 MINUTES)

In this lesson, learners find out how to add fractions with the same denominator.

Say: **Today we are learning to add fractions.**

Activity 1: Whole class activity and learners work on their own

- Each learner will need the strip of paper that you prepared before the lesson.

- Say, as you demonstrate how to fold the paper:
  Fold your paper strip in half, the in half again, then in half again.

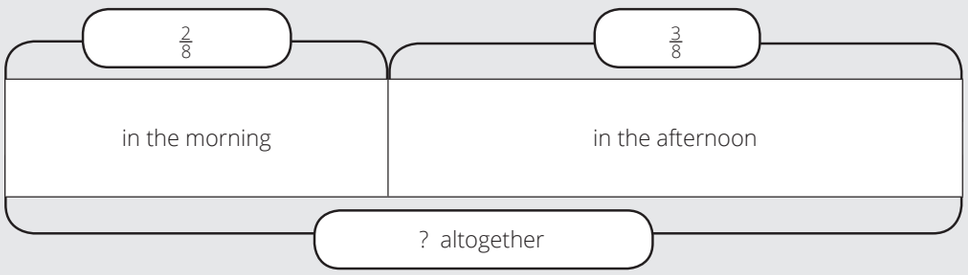
$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$

  Say: **Unfold the paper.**
  Ask: **How many equal parts are there?** (8 / eight)
  Ask: **What do we call each equal part?** (One eighth)
  Say: **Draw a line on each fold and then write $\frac{1}{8}$ on each of the eighths on the paper strip.**

- Say: **Let's use our piece of paper to help us solve a problem.**

- Say: **Sam ate <u>two eighths</u> of the bread in the morning and <u>three eighths</u> of the bread in the afternoon.**
  <u>How much of the bread did Sam eat altogether?</u>

- Go through the following steps:
  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.

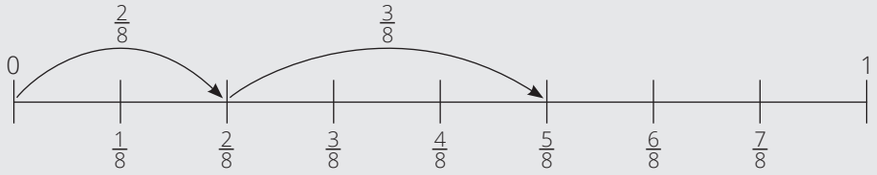


- Say: **Who would like to come to the board and write a number sentence for this problem?**
  ($\frac{2}{8} + \frac{3}{8} = \square$)
  Say: **Write the number sentence in your classwork book.**

- Say: **Use your paper strip.**
  Say: **Colour in two eighths of the paper. This shows what Sam ate in the morning.**
  Say: **Colour in three eighths of the paper. This shows what Sam ate in the afternoon.**
  Ask: **How much of the bread did Sam eat altogether?** (Five eighths)
  Say: **Complete your number sentence and write the answer.**
  ($\frac{2}{8} + \frac{3}{8} = \frac{5}{8}$, Sam ate $\frac{5}{8}$ of the bread.)

- Stick your eighths number line on the board.
  You can draw and write above the number line using chalk.
  Say: **We can also use a number line to help us add fractions.**

  Say: **We move along the number line like this: two eights and then three eighths.**



  Ask: **How much of the bread did Sam eat altogether?** (Five eighths)

- Ask: **Joe says that when we add fractions that have the same bottom number, we keep the bottom number as it is and add the top numbers only. Is Joe correct?** (Yes)

Activity 2: Learners work in pairs

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

- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Correct Activity 2 with learners so that they can receive immediate feedback.

1 Mother used $\frac{3}{5}$ kg flour to make scones and $\frac{1}{5}$ kg flour to make cupcakes.
How much flour did mother use altogether?

Write the number sentence: ($\frac{3}{5} + \frac{1}{5} = \square$)

Find the answer:

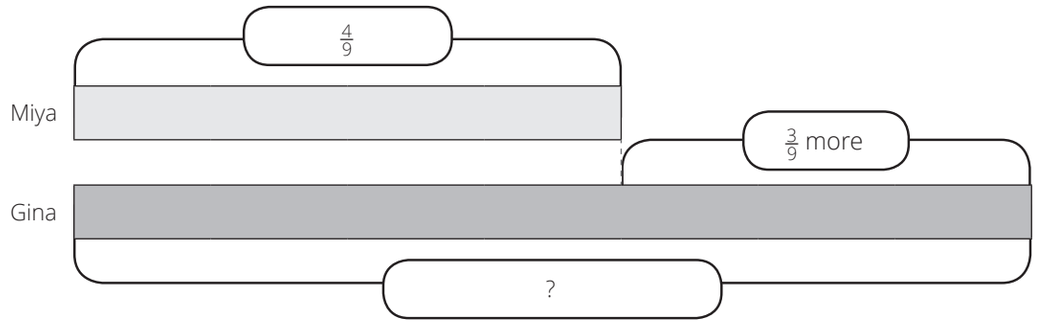
($\frac{3}{5} + \frac{1}{5} = \frac{4}{5}$)

Mother used ($\frac{4}{5}$ kg flour altogether / $\frac{4}{5}$ kg).

2 Mia has read $\frac{4}{9}$ of a book. Gina has read $\frac{3}{9}$ more of the book than Mia.
What fraction of the book has Gina read?

Draw a picture to show the problem.

ANSWER:
Possible diagram



Write the number sentence: ($\frac{4}{9} + \frac{3}{9} = \square$)

Find the answer:

($\frac{4}{9} + \frac{3}{9} = \frac{7}{9}$)

Gina has read ($\frac{7}{9}$) of the book.

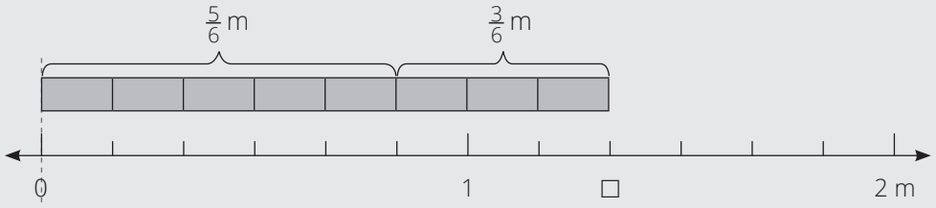
Activity 3: Whole class activity and learners work on their own

- Stick the sixths number line showing sixths on the board.
  Tell the learners to go to their number line in the LAB.

- Ask: **How many metres of rope will you have altogether if you have $\frac{5}{6}$ m rope and $\frac{3}{6}$ m rope?**
  Say: **Let's use a number line to help us find the answer.**

Display this number line on the board:

Say, as you label the fraction strip on the board above the number line:
We can show $\frac{5}{6}$ m and $\frac{3}{6}$ m like this:



- Say: **Write $\frac{5}{6} + \frac{3}{6}$ in your classwork book and then find the answer.**
  Ask: **What is five sixths plus three sixths?** (Eight sixths)

  Say: **Let's check our answer by counting on the number line.**

- Ask, as you write $\frac{8}{6}$ on the board: **What kind of fraction is eight sixths?** (Improper fraction)
  Say: **We want to write the answer as a mixed number.**
  Let's use the number line to find the mixed number: ($1\frac{2}{6}$)
  Ask: **How much rope do you have?** ($1\frac{2}{6}$ m)

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

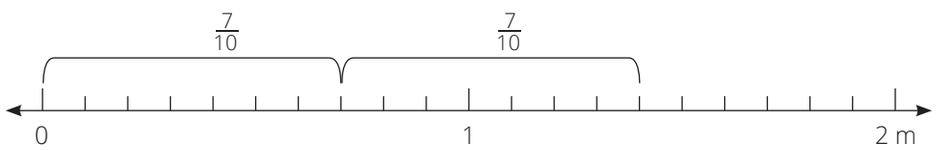
- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Correct Activity 3 with learners so that they can receive immediate feedback.

1 Annie used $\frac{7}{10}$ kg of the sugar and then another $\frac{7}{10}$ kg of the sugar.

How many kilograms of the sugar has Annie used altogether?

Write the number sentence: ($\frac{7}{10} + \frac{7}{10} = \square$)

You can use this number line to help you find the answer:



Answer: Annie has used ($1\frac{4}{10}$) kg of the sugar.

2 Godwin drank $\frac{2}{8}$ litre of milk yesterday and $\frac{6}{8}$ litre today.

How much milk did he drink in total?

Write the number sentence: ($\frac{2}{8} + \frac{6}{8} = \square$)

Find the answer:

($\frac{2}{8} + \frac{6}{8}$)

($= \frac{8}{8}$)

($= 1$)

Answer: (Godwin drank 1 litre of milk)

Hint: Think about how many eighths make a whole

3 Calculate

a ($\frac{6}{4} + \frac{1}{4}$)

($= \frac{7}{4}$)

($= 1\frac{3}{4}$)

b ($\frac{2}{3} + \frac{2}{3}$)

($= \frac{4}{3}$)

($= 1\frac{1}{3}$)

c ($\frac{5}{7} + \frac{4}{7}$)

($= \frac{9}{7}$)

($= 1\frac{2}{7}$)

d ($\frac{7}{8} + \frac{5}{8}$)

($= \frac{12}{8}$)

($= 1\frac{4}{8}$)

e ($\frac{2}{6} + \frac{5}{6}$)

($= \frac{7}{6}$)

($= 1\frac{1}{6}$)

f ($\frac{2}{4} + \frac{3}{4}$)

($= \frac{5}{4}$)

($= 1\frac{1}{4}$)

g $(\frac{7}{9} + \frac{2}{9})$

$(= \frac{9}{9})$

$(= 1)$

h $(\frac{7}{10} + \frac{8}{10})$

$(= \frac{15}{10})$

$(= 1\frac{5}{10})$

5 HOMEWORK ACTIVITY (5 MINUTES)

Explain to learners what they need to do for homework.

Read the questions in the LAB with learners. Make sure all the learners understand what to do.

Calculate

1 $\frac{3}{4} + \frac{2}{4}$

$(= \frac{5}{4})$

$= (1\frac{1}{4})$

Remember that you always change the answer to a mixed number if it is an improper fraction

2 $\frac{2}{3} + \frac{1}{3}$

$(= \frac{3}{3})$

$(= 1)$

3 $\frac{4}{5} + \frac{3}{5}$

$(= \frac{7}{5})$

$= (1\frac{2}{5})$

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 learned to add fractions and we have revised how to change an improper fraction to a mixed number.**

Lesson 19: Adding fractions (2)

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.		
CAPS topics: 1.2 Common fractions		
Lesson Objective: Learners will be able to add fractions with the same denominator.		
Lesson Vocabulary: improper fraction, mixed number, kilogram, kilometre, whole number, proper fraction		
Teacher Resources: Blank number line divided in fifths, A4 paper		
Learner Resources: None		
Date:	Week	Day

1 MENTAL MATHS (5 MINUTES)

		Answer			Answer
1	$\frac{2}{4} + \frac{1}{4} =$	$\frac{3}{4}$	**6**	$\frac{2}{6} + \frac{1}{6} =$	$\frac{3}{6}$
2	$\frac{1}{3} + \frac{1}{3} =$	$\frac{2}{3}$	**7**	$\frac{1}{8} + \frac{3}{8} =$	$\frac{4}{8}$
3	$\frac{5}{7} + \frac{1}{7} =$	$\frac{6}{7}$	**8**	$\frac{2}{5} + \frac{1}{5} =$	$\frac{3}{5}$
4	$\frac{2}{8} + \frac{5}{8} =$	$\frac{5}{8}$	**9**	$\frac{1}{4} + \frac{1}{4} =$	$\frac{2}{4}$
5	$\frac{3}{6} + \frac{2}{6} =$	$\frac{5}{6}$	**10**	$\frac{3}{5} + \frac{1}{5} =$	$\frac{4}{5}$

2 LINK TO PREVIOUS LESSON (5 MINUTES)

Revise addition of fractions concepts from the previous lesson by asking these questions:

- Ask: **How many sevenths in one whole?** (Seven / 7)
- Ask: **How many thirds in one whole?** (Three / 3)
- Ask, as you write the improper fraction $\frac{5}{3}$ the board:
  How many thirds are there in five thirds? (Five / 5)
- Ask, as you write the mixed number $1\frac{1}{3}$ on the board:
  How many thirds are there in one and one third?
  (Four / 4, because $1 = \frac{3}{3}$ and three-thirds plus one-third is equal to four-thirds)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 18 are provided in 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, learners revise the addition of fractions. Learners also find out how to do addition calculations that involve mixed numbers.

Say: **Today we are learning more about adding fractions.**

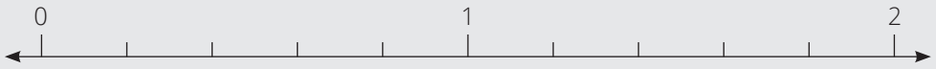
Activity 1: Whole class activity and learners work on their own

- You will need the blank numbers line (fifths).

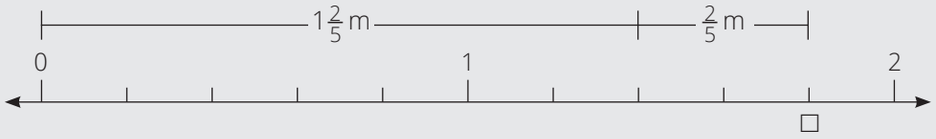
- Say as you write the number sentence on the board:
  Jabu has one piece of material that is one and two fifths of a metre, and another piece of material of material that is two fifths of a metre.
  How much material does Jabu have altogether?

- Let learners write the number sentence in their classwork book: ($1\frac{2}{5} + \frac{2}{5} = \square$)
  Let some learners come and write their number sentence on the board.
  Discuss the various number sentences until you agree on the correct one.

- Say: **Let's use a number line to help us solve the problem.**



- Say, as you draw the line indicating $1\frac{2}{5}$:
  Let's find one and two fifths on the number line.



  Say, as you draw the line indicating $\frac{2}{5}$:
  Let's add another two fifths on the number line.
  Ask, as you draw the placeholder □ at $1\frac{4}{5}$:
  Who would like to come to the board to write the answer? ($1\frac{4}{5}$ metre)

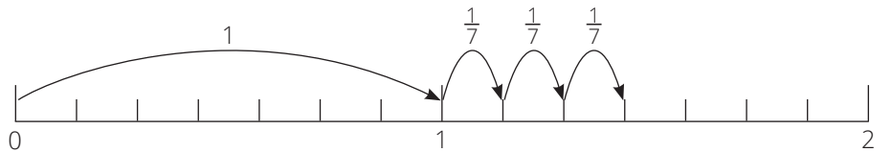
Activity 2: Learners work in pairs

Say: Complete Activity 2 in your LAB.

- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Correct Activity 2 with learners so that they can receive immediate feedback.

1 Use a number line to calculate: $1\frac{1}{7} + \frac{2}{7} = \square$

Show the problem on the number line:



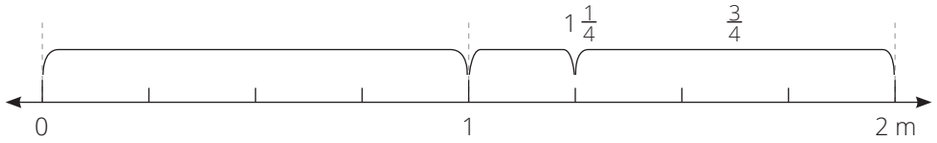
Answer: ($\frac{13}{7}$)

2 On Sunday, Mari walked $1\frac{1}{4}$ km in the morning and $\frac{3}{4}$ km in the afternoon.

How far did Mari walk on Sunday?

Write the number sentence: ($1\frac{1}{4}$ km+ $\frac{3}{4}$ km = $\square$)

Show the problem on the number line:



Answer: (Mari walked 2 km on Sunday.)

Activity 3: Whole class activity and learners work in pairs

- Say: **Let's use what we know about *mixed numbers* and *improper fractions* to add fractions without using a number line.**
- Ask: **Who would like to come and write an *improper fraction* on the board?**
  (Any fraction where the numerator is bigger than the denominator. Example: $\frac{8}{5}$).
  Say: **Remember that when the top number in a fraction is bigger than the bottom number, the fraction is an *improper fraction*.**
- Ask: **Who would like to come and write a *mixed number* on the board?**
  (Any number consisting of a whole number and a proper fraction. Example: $1\frac{3}{5}$).
  Say: **Remember that when a number has a whole number and a proper fraction, the number is a *mixed number*.**
- Write the number sentence $1\frac{2}{5} + \frac{2}{5}$ on the board and let learners write the number sentence in their classwork book.
  Ask: **How do you calculate the answer?**
  (There are two possible methods that could be used)

  (Method 1: $1\frac{2}{5} = 1 + \frac{2}{5}$,then $1 + \frac{2}{5} + \frac{2}{5} = 1\frac{4}{5}$, so the answer is 1 and four fifths ($1\frac{4}{5}$).

  (Method 2: $1\frac{2}{5} = \frac{7}{5}$, so $\frac{7}{5} + \frac{2}{5} = \frac{9}{5}$ and $\frac{9}{5} = 1\frac{4}{5}$)

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

- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Correct Activity 3 with learners so that they can receive immediate feedback.

ANSWERS

1 Calculate: $1\frac{2}{8} + \frac{5}{8} = \square$

Two methods are possible:

Method 1:

a Break the mixed number into a whole number and fraction:
$1\frac{2}{8} = 1 + \frac{2}{8}$

b Add the fraction parts together: $\frac{2}{8} + \frac{5}{8} = \frac{7}{8}$

c Add the whole number and fraction together:
$1 + \frac{2}{8} + \frac{5}{8} = 1\frac{7}{8}$

Method 2:

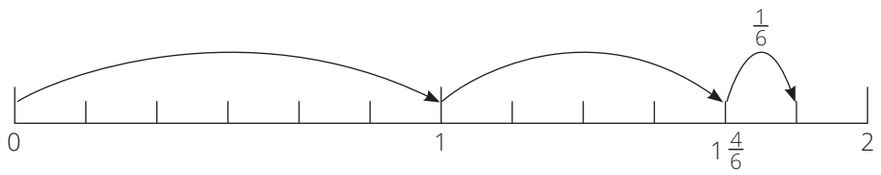
a Write the mixed number as an improper fraction:
$(1\frac{2}{8} = \frac{10}{8})$

b Add the two fractions: $(\frac{10}{8} + \frac{5}{8} = \frac{15}{8})$

c Write the answer as a mixed number: $(\frac{15}{8} = 1\frac{7}{8})$

2 Calculate: $\frac{1}{6} + 1\frac{4}{6} = \square$

a Show the addition on a number line:



b Write the answer as a mixed number: $(1\frac{5}{6})$

3 Use a method of your choice to calculate: $\frac{3}{8} + 1\frac{4}{8} = \square$ $(1\frac{7}{8})$

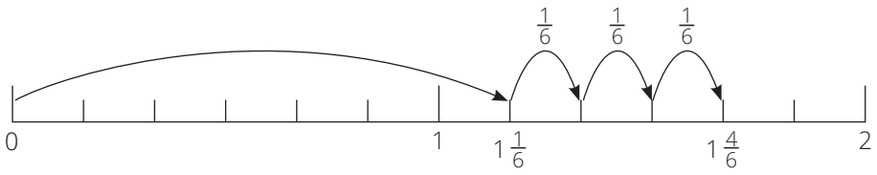
5 HOMEWORK ACTIVITY (5 MINUTES)

Explain to learners what they need to do for homework.

Read the questions in the LAB with learners. Make sure all the learners understand what to do.

1 Calculate: $1\frac{1}{6} + \frac{3}{6} = \square$

Show the problem on a number line



Answer: $(1\frac{4}{6})$

2 Use a method of your choice to calculate:

$1\frac{1}{7} + \frac{5}{7} = \square$

Method 1:

a Write the mixed number as an improper fraction: $(\frac{8}{7})$

b Add the two fractions:
$(\frac{8}{7} + \frac{5}{7} = \frac{13}{7})$

c Write the answer as a mixed number: $(1\frac{6}{7})$

Method 2:

a Break the mixed number into a whole number and fraction:
$1\frac{1}{7} = 1 + \frac{1}{7}$

b Add the fraction parts together:
$\frac{1}{7} + \frac{5}{7} = \frac{6}{7}$

c Add the whole number and fraction together: $1 + \frac{1}{7} + \frac{5}{7} = 1\frac{6}{7}$

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 learned to add fractions involving mixed numbers.**

Lesson 20: Subtract fractions (1)

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.		
CAPS topics: 1.2 Common fractions		
Lesson Objective: Learners will be able to subtract fractions with the same denominator.		
Lesson Vocabulary: improper fraction, mixed number, subtract, above		
Teacher Resources: Number line showing fifths.		
Date:	Week	Day

1 MENTAL MATHS (5 MINUTES)

	Write as a mixed number:			Write as an improper fraction:	
1	$\frac{5}{4}$ =	$1\frac{1}{4}$	**6**	$1\frac{1}{3}$ =	$\frac{4}{3}$
2	$\frac{5}{3}$ =	$1\frac{2}{3}$	**7**	$1\frac{2}{8}$ =	$\frac{10}{8}$
3	$\frac{10}{7}$ =	$1\frac{3}{7}$	**8**	$1\frac{5}{6}$ =	$\frac{11}{6}$
4	$\frac{9}{6}$ =	$1\frac{3}{6}$	**9**	$1\frac{1}{9}$ =	$\frac{10}{9}$
5	$\frac{7}{5}$ =	$1\frac{2}{5}$	**10**	$1\frac{6}{7}$ =	$\frac{13}{7}$

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Write this number sentence on the board: $\frac{2}{6} + 1\frac{3}{6} = \square$
  Say: **Copy this sum into your classwork book. Use any method to find the answer.**
  Ask: **Who would like to come and write the answer on the board?** ($\frac{11}{6}$ or $1\frac{5}{6}$)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 19 are provided 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)

Remember that in TMU, we teach for understanding. This often involves the use of pictorial representations such as number lines or concrete representation such as fraction strips. The support provided by these representations will be withdrawn once learners have grasped the concept. Also, we try to show how mathematics can be used in our everyday lives. Measurement contexts are often used when adding and subtracting fractions.

In this lesson, learners revise the subtraction of fractions with the same denominator from Grade 3. Learners also find out how to do subtraction calculations involving improper fractions and mixed numbers.

Say: **Today we are learning to subtract fractions.**

Activity 1: Whole class activity

- Say: **In Grade 3 you learnt to subtract fractions. Let's practise what you learned.**

- **When we subtract one quarter of a kilogram of flour from three quarters of a kilogram of flour, how much flour do we have left?**
  Ask: **What is the operation for this problem?** (subtraction)
  Let learners write the number sentence in their classwork and then you write
  $\frac{3}{4} - \frac{1}{4} = \square$ on the board
  Ask: **What is the answer?** (Two quarters of a kilogram of flour)
  Let learners complete the number sentence and write the answer in their classwork book.
  Write the answer on the board so that the learners can correct their calculations:
  ($\frac{3}{4} - \frac{1}{4} = \frac{2}{4}$ so the answer is $\frac{2}{4}$ kg)

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

- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Correct Activity 2 with learners so that they can receive immediate feedback.

Calculate

1 $\frac{4}{5} - \frac{2}{5} = (\frac{2}{5})$

2 $\frac{8}{8} - \frac{7}{8} = (\frac{1}{8})$

3 $\frac{2}{4} - \frac{2}{4} = (0)$

4 $\frac{5}{7} - \frac{1}{7} = (\frac{4}{7})$

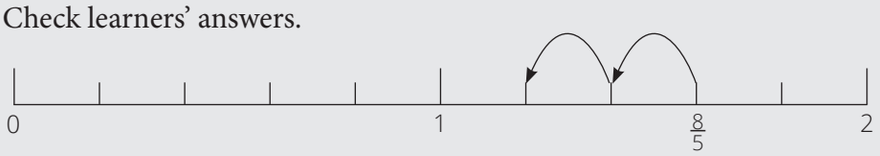
5 $\frac{2}{3} - \frac{1}{3} = (\frac{1}{3})$

6 $\frac{3}{6} - \frac{2}{6} = (\frac{1}{6})$

Activity 2: Whole class activity and learners work in pairs

- Stick the fifths number line from 0 to 2 on the board.
  The learners have a fifths number line in their LAB.

- Say, as you write the improper fraction on the board: **Sibu walks $\frac{8}{5}$ km to work every day.**
- Say: **Write $\frac{8}{5}$ on the number line.**
  Check learners' answers.



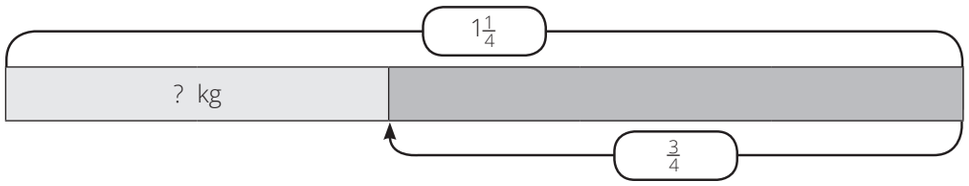
- Ask: **Sibu has already walked $\frac{2}{5}$ km. How far must he still walk?**
  Write the number sentence: ($\frac{8}{5}$ km – $\frac{2}{5}$ km = ☐ km)
- Say: **Work with your partner. Talk about how you will find the answer. Use your number line.**
- Ask: **Who would like to come to the board and explain to us how they found the answer?**
  (Answer must include showing how to 'hop $\frac{2}{5}$ back' along the number line to get an answer of $\frac{6}{5}$.
  Then use the number line to convert $\frac{6}{5}$ to get $1\frac{1}{5}$ km).

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

- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
  Correct Activity 2 with learners so that they can receive immediate feedback.

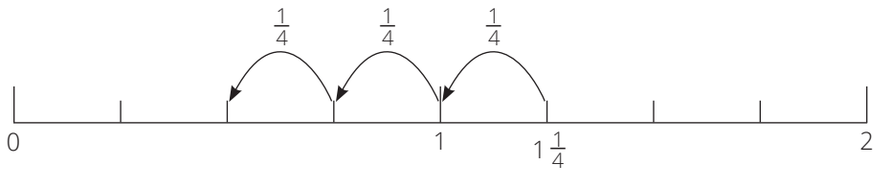
1 Felix had $1\frac{1}{4}$ kg of sugar.
He used $\frac{3}{4}$ kg of the sugar.
How much kg of sugar does Felix have left?

a Use the diagram to help you write the number sentence.



Number sentence: ($1\frac{1}{4}$ – $\frac{3}{4}$ = ☐)

b Use the number line or fraction strip to find the answer.
(Note: the way the 'hops' are shown could vary. This is one example.)



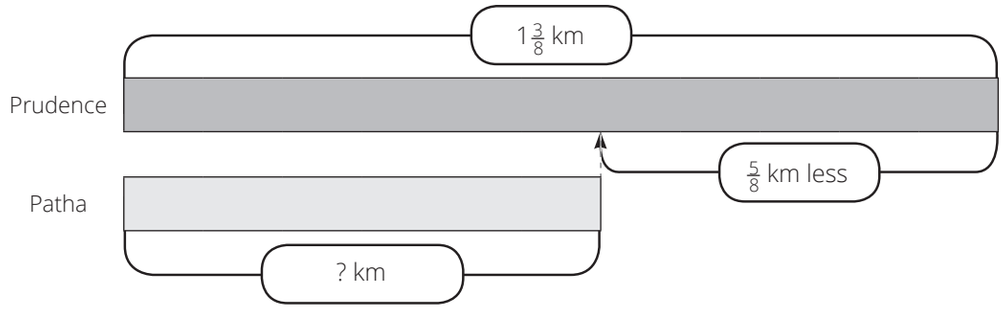
Answer: Felix has $\frac{2}{4}$ kg of sugar left.

2 Prudence has run $1\frac{3}{8}$ km.

Patha has run $\frac{5}{8}$ km less than Prudence.

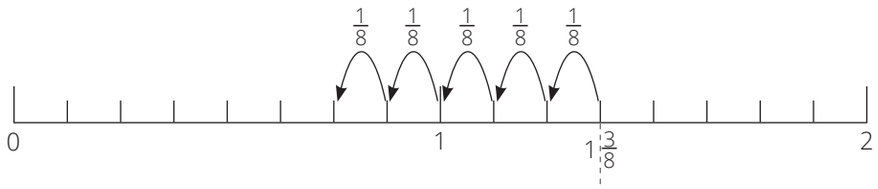
How far has Patha run?

a Use the diagram to help you write the number sentence.



Number sentence: $(1\frac{3}{8} - \frac{5}{8} = \square)$

b Use the number line to find the answer.
(Note: the way the 'hops' are shown could vary. This is one example.)



Answer: (Patha has run $\frac{6}{8}$ km.)

3 Calculate $1\frac{1}{5} - \frac{4}{5} = \square$. Use a method of your choice.

Answer: $(1\frac{1}{5} - \frac{4}{5} = \frac{2}{5})$

5 HOMEWORK ACTIVITY (5 MINUTES)

Explain to learners what they need to do for homework.

Read the questions in the LAB with learners. Make sure all the learners understand what to do.

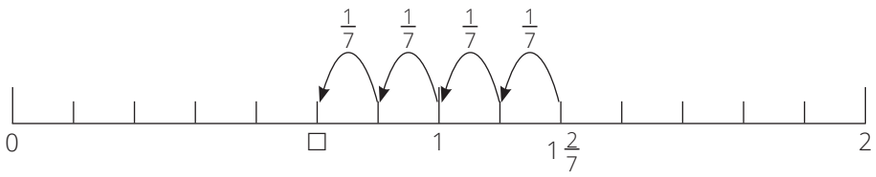
1 Busi had $1\frac{2}{7}$ litres of milk.

She used $\frac{4}{7}$ litres to bake scones.

How much milk does Busi have left?

a Write the number sentence: ($1\frac{1}{7} - \frac{4}{7} = \square$)

b Use the number line to find the answer.



Answer: (Busi has $\frac{5}{7}$ litres of milk left.)

2 Calculate: $1\frac{1}{3} - \frac{2}{3} = \square$. Use a method of your choice.

Answer: ($1\frac{1}{3} - \frac{2}{3} = \frac{4}{3} - \frac{2}{3} = \frac{2}{3}$)

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 learned to subtract fractions.**

Lesson 21: Subtract fractions (2)

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.		
CAPS topics: 1.2 Common fractions		
Lesson Objective: Learners will be able to subtract fractions with the same denominator.		
Lesson Vocabulary: distance, subtract		
Resources: No resources are needed		
Date:	Week	Day

1 MENTAL MATHS (5 MINUTES)

		Answer			Answer
1	$\frac{2}{3} - \frac{1}{3} =$	$\frac{1}{3}$	**6**	$\frac{8}{8} - \frac{3}{8} =$	$\frac{5}{8}$
2	$\frac{6}{7} - \frac{2}{7} =$	$\frac{4}{7}$	**7**	$\frac{3}{4} - \frac{1}{4} =$	$\frac{2}{4}$
3	$1 - \frac{5}{6}$	$\frac{1}{6}$	**8**	$\frac{1}{5} - \frac{1}{5} =$	0
4	$\frac{7}{8} - \frac{5}{8} =$	$\frac{2}{8}$	**9**	$\frac{4}{6} - \frac{3}{6} =$	$\frac{1}{6}$
5	$\frac{4}{5} - \frac{2}{5} =$	$\frac{2}{5}$	**10**	$\frac{3}{7} - \frac{1}{7} =$	$\frac{2}{7}$

2 LINK TO PREVIOUS LESSON (5 MINUTES)

Revise learners' understanding of subtraction of fractions with the same denominator:
Say, as you write the number sentence on the board: **Do this calculation:**

$$1\frac{2}{6} - \frac{5}{6} = \square \qquad (\frac{3}{6})$$

Use a number line or fraction strip for further explanation if necessary.

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 20 are provided 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 consolidate their understanding of subtracting fractions with the same denominator. Learners also subtract from whole numbers.

Say: **Today we are practising the subtraction of fractions.**

Activity 1: Whole class activity and learners work with a partner

- Ask: **Bulerwa has used $\frac{4}{7}$ of a tin of paint. How much paint is left in the tin?**

- Learners to work in pairs. Allow time for them to discuss the answer and how to work out the answer.
  Do not rush to show learners how to do the calculation.
  Once learners have had a chance to try to answer, ask:
  What is different about this question?
  (We are not given two numbers / we are only given one number / we don't know what to subtract)

- Say: **There is one full tin of paint.**
  Ask: **How many sevenths are there in one whole?** (Seven sevenths or $\frac{7}{7}$)
  Ask: **How do you write 1 in sevenths?**
  Let a learner write on the board. ($1 = \frac{7}{7}$)

- Ask: **Who would like to come to the board and write a number sentence now?**
  ($\frac{7}{7} - \frac{4}{7} = \square$)
  Say: **Now calculate the answer.** (Bulerwa has $\frac{3}{7}$ of the tin left).

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

- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Correct Activity 1 with learners so that they can receive immediate feedback.

Calculate:

1 $1 - \frac{1}{4} = \square$

($\frac{4}{4} - \frac{1}{4} = \frac{3}{4}$)

2 $1 - \frac{3}{7} = \square$

($\frac{7}{7} - \frac{3}{7} = \frac{4}{7}$)

Activity 2: Learners work in pairs

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

- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Correct Activity 2 with learners so that they can receive immediate feedback.

1 Mbeki had $\frac{4}{5}$ litres of juice left.

How much juice did he drink if he had $1\frac{1}{5}$ litres of juice to start with?

a Write the number sentence:

($1\frac{1}{5} - \frac{4}{5} = \square$)

b Write the mixed number as an improper fraction:

($\frac{6}{5}$)

c Do the subtraction:

($\frac{6}{5} - \frac{4}{5} = \frac{2}{5}$)

d Write the answer

(He drank $\frac{2}{5}$ litre of juice.)

2 The distance from home to school is $1\frac{3}{10}$ kilometres.

Tom has walked $\frac{7}{10}$ kilometres.

How far does Tom still have to walk?

a Write the number sentence:

($1\frac{3}{10} - \frac{7}{10} = \square$)

b Write the mixed number as an improper fraction:

($\frac{13}{10}$)

c Do the subtraction:

($\frac{13}{10} - \frac{7}{10} = \frac{6}{10}$)

d Write the answer

(Tom has to walk $\frac{6}{10}$ kilometres.)

3 Ms Phumla bought $1\frac{1}{4}$ metres of ribbon.

She used $\frac{3}{4}$ metres for a present.

How much of ribbon does she have left?

a Write the number sentence:

($1\frac{1}{4} - \frac{3}{4} = \square$)

b Write the mixed number as an improper fraction:

($\frac{5}{4}$)

c Do the subtraction:

($\frac{5}{4} - \frac{3}{4} = \frac{2}{4}$)

d Write the answer

(She has $\frac{2}{4}$ metres left.)

4 Calculate

a $1\frac{2}{8} - \frac{7}{8} = \square$

($\frac{10}{8} - \frac{7}{8} = \frac{3}{8}$)

b $1\frac{1}{6} - \frac{5}{6} = \square$

($\frac{7}{6} - \frac{5}{6} = \frac{2}{6}$)

c $1\frac{1}{9} - \frac{5}{9} = \square$

($\frac{10}{9} - \frac{5}{9} = \frac{5}{9}$)

d $1\frac{2}{7} - \frac{3}{7} = \square$

($\frac{9}{7} - \frac{3}{7} = \frac{6}{7}$)

e $1\frac{2}{3} - \frac{2}{3} = \square$

($\frac{5}{3} - \frac{2}{3} = \frac{3}{3} = 1$)

f $1\frac{3}{8} - \frac{7}{8} = \square$

($\frac{11}{8} - \frac{7}{8} = \frac{4}{8}$)

5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain to learners what they need to do for homework.
- Read the questions in the LAB with learners.
- Make sure all the learners understand what to do.

Calculate

1 $\frac{6}{6} - 1 = \square$

Answer: ($\frac{6}{6} - 1 = \frac{6}{6} - \frac{6}{6} = 0$)

2 $1\frac{2}{3} - 1\frac{1}{3} = \square$

Answer: ($\frac{5}{3} - \frac{4}{3} = \frac{1}{3}$)

3 $1\frac{7}{8} - \frac{9}{8} = \square$

Answer: ($\frac{15}{8} - \frac{9}{8} = \frac{6}{8}$)

4 $1\frac{5}{7} - \frac{6}{7} = \square$

Answer: ($\frac{12}{7} - \frac{6}{7} = \frac{6}{7}$)

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 learned how to subtract more fractions.**

Lesson 22: Consolidation

Teacher's notes
This lesson allows for consolidation of the previous days' lesson content.
CAPS topics: 1.2 Common fractions
Lesson Objective: Learners will revise the addition and subtraction of fractions with the same denominator.
Lesson Vocabulary: proper fraction, improper fraction, mixed number, add, subtract
No resources needed
Date: Week Day

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

The main topics in this week were the addition and subtraction of fractions with the same denominator.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

- Some learners add the denominators as well as the numerators.
- Learners often ignore the whole numbers when calculating with mixed numbers.
- Some learners fail to convert mixed numbers to improper fractions before they calculate.
- Learners sometimes forget to convert an improper fraction to a mixed number for the final answer.

3 CORRECT HOMEWORK

The answers to the Homework Activity for Lesson 21 are provided in lesson 21.

Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

4 CLASSWORK

Say: **Today we are going over what we learned this week. We will practise adding and subtracting fractions.**

- You could use this time for learners to complete classwork or homework activities as necessary.
- You could find suitable additional activities in the textbooks that you have or use the Consolidation Activity given.

Additional activities for consolidation

Refer to the following table. Select additional activities from the textbook/s you have.

Use the answers in the Teacher's Guide to correct the work.

	Fabulous	Oxford Headstart	Oxford Successful	Platinum	Premier	Sasol Inzalo	Solutions for All	Study & Master	Viva
LB	109-114	107-117	86-95	62-67	64-68	136-146	98-106	114-122	67-73
	165-166	183-190	147-152	108-112	120-129	211-224	179-188	188-195	120-123
TG	75-78	139-146	96-101	53-55	32-34	149-160	74-79	156-173	39-42
	128-130	224-229	138-140	87-89	61-65	237-254	144-149	245-256	64-66

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

Consolidation Activity

1 Calculate:

a $\frac{1}{3} + \frac{1}{3} = (\frac{2}{3})$

b $\frac{5}{7} - \frac{1}{7} = (\frac{4}{7})$

2 Calculate:

a $1\frac{2}{3} - \frac{2}{3} = (\frac{5}{3} - \frac{2}{3} = \frac{3}{3} = 1)$

b $1\frac{5}{8} - \frac{6}{8} = (\frac{13}{8} - \frac{6}{8} = \frac{7}{8})$

3 Calculate:

a $\frac{4}{9} + \frac{7}{9} = (\frac{11}{9} = 1\frac{2}{9})$

(Note: It is fine if the learner skips out the first step but still gets the answer correct.)

b $1\frac{3}{7} - \frac{5}{7} = (\frac{10}{7} - \frac{5}{7} = \frac{5}{7})$

4 Use any method to calculate:

a $1\frac{2}{3} - \frac{5}{3} = (\frac{5}{3} - \frac{5}{3} = 0)$

b $\frac{6}{8} - \frac{2}{8} = (\frac{4}{8})$

5 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 revised how to:**

- **change an improper fraction to a mixed number**
- **change a mixed number to an improper fraction**
- **add fractions**
- **subtract fractions.**

Unit 3: Data handling

INTRODUCTION

This unit focuses on the data handling concepts which learners need so that they can complete the data handling cycle. These concepts include collecting and organising data; representing data; and analysing, interpreting and reporting data. In Grade 4, learners work with the following representations of data: tables, pie charts, pictographs and bar graphs (including stacked bar graphs).

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

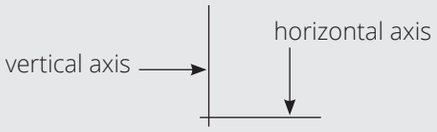
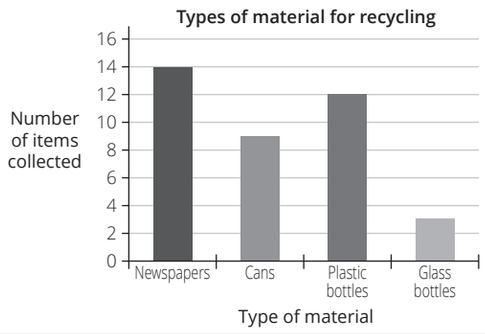
Framework dimension	How the dimension is developed in this unit
Conceptual understanding	Learners work with data from different contexts, representing different number ranges and in different representations to develop the range of concepts required to complete the data handling cycle.
Procedural fluency	Learners repeatedly represent data so that they become fluent in the procedures required.
Strategic competence	Learners apply the data handling cycle in a range of contexts in order to answer research questions.
Reasoning	Learners use logic and the number range of the data to decide what scale to use on a bar graph and in a many-to-one pictograph.

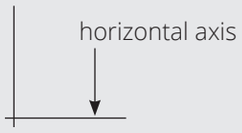
In this unit, we build a **learning centred classroom** by paying attention to:

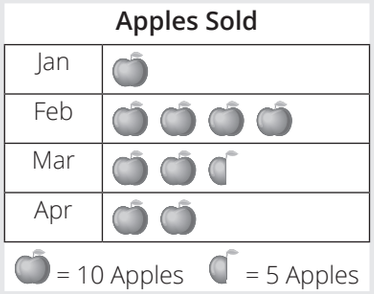
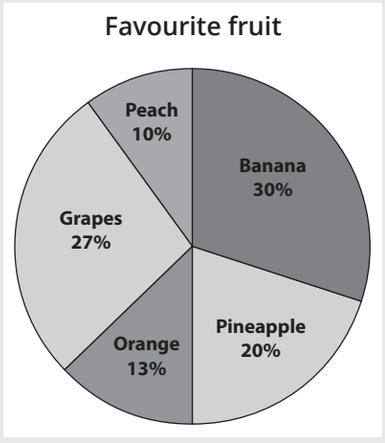
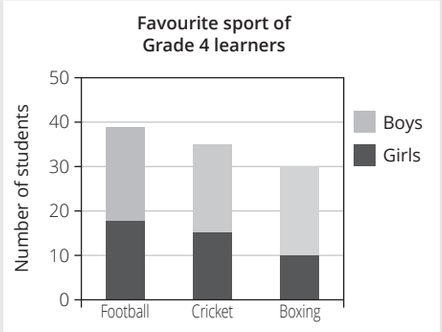
		Examples
Concept development	✓	Done in all lessons
Speaking mathematics	✓	Learners are encouraged to use the 'language of data handling' as they communicate their ideas.
Making sense of mathematics	✓	Learners use what they have learned in previous lessons to make sense of the lessons that follow.
Practising procedures	✓	Learners practise the steps of the data handling cycle by answering different research questions from different contexts.
Connecting representations	✓	Learners see how the same data can be represented in different types of graphs.
Connecting topics and concepts	✓	Learners use their knowledge of fractions (Content area: Number, operations and relationships) when reading a pie chart (Content area: Data handling).
Active learning	✓	Learners ask a research question based on their own contexts, and then plan and carry out the data handling cycle themselves.
Applying maths in context	✓	Environmental and conservation contexts, such as recycling, litter, elephant and rhino poaching are used in representations.

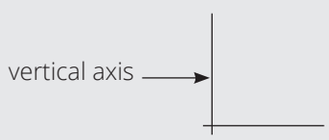
Mathematical vocabulary for this unit

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
axis (plural axes)	Many graphs have two axes: a horizontal axis and a vertical axis. 
backwards	In reverse of the usual way Example: When you count backwards in whole numbers, the numbers get smaller: 10, 9, 8, 7, ...
bar graph or bar chart	A graph which uses bars to show information. The bars are all the same thickness and can be horizontal or vertical. 
calculate	Find the answer. Work out the solution
career	Work that you do during your life
data	A collection of facts or information that you find out or are given. Data can be words, numbers or a mixture of both Examples: Information about the heights of the learners in your class; Information about the numbers of different coloured cars in the parking area
data handling cycle	A sequence of steps to follow to change data into information which is useful
decrease	Make smaller
few	Not many. A small number
fewer	Less than
forwards	Going towards the front Example: When you count forwards in whole numbers the numbers get bigger: 5, 6, 7, 8 ...

<table>
<tr><th>Term</th><th>Explanation / diagram</th></tr>
<tr><td>frequency</td><td>How often something happens</td></tr>
<tr><td>frequency table</td><td>A table used to record frequencies of different items of data
Tally marks are often used to show the frequency in a frequency table
<table>
<tr><th>Mark</th><th>Tally</th><th>Frequency</th></tr>
<tr><td>4</td><td>||</td><td>2</td></tr>
<tr><td>5</td><td>||</td><td>2</td></tr>
<tr><td>6</td><td>||||</td><td>4</td></tr>
<tr><td>7</td><td>𝍸</td><td>5</td></tr>
<tr><td>8</td><td>||||</td><td>4</td></tr>
<tr><td>9</td><td>||</td><td>2</td></tr>
<tr><td>10</td><td>|</td><td>1</td></tr>
</table></td></tr>
<tr><td>gap</td><td>Space between
It could be a time interval or an interval in numbers</td></tr>
<tr><td>graph heading</td><td>Title of the graph – tells you what the graph is about</td></tr>
<tr><td>horizontal</td><td>Going from side to side, like the horizon</td></tr>
<tr><td>horizontal axis</td><td>The axis in the graph that goes across or from side to side
 
</td></tr>
<tr><td>interval</td><td>The gap between things
For example: a time interval or an interval in numbers</td></tr>
<tr><td>key</td><td>Information which tells you the value of each symbol or interval</td></tr>
<tr><td>label</td><td>A name applying to an object or an axis</td></tr>
<tr><td>least</td><td>Smallest number</td></tr>
<tr><td>less</td><td>Smaller number or amount</td></tr>
<tr><td>location</td><td>Position</td></tr>
<tr><td>more</td><td>Greater number or amount</td></tr>
<tr><td>most</td><td>Greatest number or amount</td></tr>
<tr><td>number line</td><td>Line on which numbers can be placed according to their value
The gaps on the number line are called intervals and must be drawn accurately</td></tr>
<tr><td>organise</td><td>Arrange in a logical way</td></tr>
</table>

Term	Explanation / diagram
pictograph, pictogram, picture graph	Graph that uses symbols (pictures) to show data 
pie chart	Circular graph. The different-sized slices of the pie chart stand for different quantities 
popular	Something which is well liked, occurs frequently / a lot
report	A written or verbal account of something that one has observed, heard, done, or investigated
represent	Show in another way
stacked bar graph	A chart that uses bars to show comparisons between categories of data Each bar in the chart represents a whole. The segments in the bar represent different parts or categories of that whole 
survey	A method of gathering information from a sample of people

<table>
<tr><th>Term</th><th>Explanation / diagram</th></tr>
<tr><td>symbol</td><td>Small picture which represent something</td></tr>
<tr><td>table</td><td>Grid consisting of columns and rows</td></tr>
<tr><td>tally</td><td>Mark which is used to keep track when counting.
We use the symbol || to represent 2 objects, 𝍸 to represent 5 objects and 𝍸 |||| to represent 9 objects.</td></tr>
<tr><td>tally table</td><td>Table in which tallies are recorded
We total the tallies to obtain the frequency
<table>
<tr><th>Mark</th><th>Tally</th><th>Frequency</th></tr>
<tr><td>4</td><td>||</td><td>2</td></tr>
<tr><td>5</td><td>||</td><td>2</td></tr>
<tr><td>6</td><td>||||</td><td>4</td></tr>
<tr><td>7</td><td>𝍸</td><td>5</td></tr>
<tr><td>8</td><td>||||</td><td>4</td></tr>
<tr><td>9</td><td>||</td><td>2</td></tr>
<tr><td>10</td><td>|</td><td>1</td></tr>
</table></td></tr>
<tr><td>trial and error</td><td>Problem solving technique in which different values or options are tested until the correct value or option is found</td></tr>
<tr><td>two-way table</td><td>Table of data which shows the combined effect of two separate happenings
<table>
<tr><th>Preferred Pet / Gender</th><th>Dog</th><th>Cat</th><th>Other</th><th>TOTAL</th></tr>
<tr><td>Girl</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Boy</td><td></td><td></td><td></td><td></td></tr>
<tr><td>TOTAL</td><td></td><td></td><td></td><td></td></tr>
</table></td></tr>
<tr><td>Vertical / vertical line</td><td>Upright, going up and down / from top to bottom</td></tr>
<tr><td>vertical axis</td><td>The axis in the graph that runs up and down
 
</td></tr>
</table>

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	Viva
LB	63-73	64-71	53-59	35-41	34-40	86-95	49-63	67-82	36-44
	177-180	215-223	170-178	128-135	146-149	258-261	201-206	215-222	140-146
TG	41-46	88-93	73-78	27-34	16-18	92-102	49-56	95-105	28-29
	141-144	253-260	149-153	101-105	74-76	294-299	162-164	288-293	74-75

UNIT PLAN AND OVERVIEW FOR UNIT 3: Data handling

LP	Lesson objectives Learners will be able to:	Lesson Resources Learners need classwork books, LABs, writing materials and a pair of scissors for all lessons	Date completed
23	Organise and interpret data in tally tables and frequency tables	None	
24	Organise data so that they can examine two things at once	None	
25	Represent, analyse and interpret data in a two-way table	Teacher: A3 distance chart; long ruler Learner: ruler	
26	Organise and represent data in a bar graph, and analyse bar graphs	Teacher: A3 poster of a grid; non-permanent pen	
27	Work out intervals when drawing bar graphs	Teacher: Blank number line Learner: Blank number line	
28	Work out intervals when drawing bar graphs	Teacher: A3 poster: Learners' preferred weather	
29	Read many-to-one pictographs	Teacher and learners: Pictographs from old magazines, newspapers, advertisements and the internet (if available)	
30	Organise, represent, analyse, interpret and report data represented in a many-to-one pictograph	None	
31	Represent, analyse and interpret data on many-to-one pictographs	None	
32	Represent, analyse, interpret and report data in pictographs	Teacher and learners: Examples of pictographs from old magazines, newspapers, advertisements and the internet (if available)	
33	Analyse, interpret and report data in pie charts and stacked bar graphs	Teacher: Pie charts and stacked bar graphs that learners and teacher have collected, A4 poster: Pie chart of How Busi spends her money Learner: Pie charts and stacked bar graphs that learners have collected	
34	Read and interpret data presented in horizontal and vertical bar graphs	Teacher: A4 pie chart: Amount of fresh water and salt water on Earth	

35	Answer a research question by working through the data handling cycle	Teacher: A3 Poster of The Data Handling Cycle; Flashcards: The data handling cycle; ask a question; collect data; represent data by drawing a graph; interpret the data; report on your findings; 5 arrows Learner: None	
36	Answer a research question by working through the data handling cycle	Teacher: A3 Poster of The Data Handling Cycle Learner: None	
37	Revise the collection, organisation, representation, analysis, interpretation and reporting of data	Teacher: Textbooks (if available) Learner: Textbooks (if available)	

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 23: Organise data in tables

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 5.1 Collecting and organising data 5.2 Representing data 5.3 Analysing, interpreting and reporting data
Lesson Objective: Learners will be able to organise and interpret data in tally tables and frequency tables.
Lesson Vocabulary: data, tally table, frequency table, tally, frequency, most, least, popular
Resources: None
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

		Answers
1	Start at 0 and count up in 5s until you reach 50.	0, 5, 10,15, 20, 25, 30, 35, 40, 45, 50
2	Start at 100 and count down in 5s until you reach 50	100, 95, 90, 85, 80, 75, 70, 65, 60, 55, 50
3	Start at 890 and count up in 5s until you reach 930.	890; 895; 900; 905; 910, 915, 920, 925, 930.
4	Start at 410 and count down in 5s until you reach 370	410; 405; 400; 395; 390, 385, 380, 375, 370
5	Start at 580 and count up in 5s until you reach 620.	580, 585, 590, 595, 600, 605, 610, 615, 620
6	Start at 430 and count down in 5s until you reach 390	430; 425; 420, 415, 410, 405, 400, 395, 390

2 LINK TO PREVIOUS LESSON (5 MINUTES)

Ask a few questions on the Grade 3 work on tallies.

- Let learners write totals individually in their LAB while you draw this tally table on the board:

Favourite fruit	Tallies	Total
Apple	𝍸 𝍸	(10)
Banana	𝍸 𝍸 |||	(13)
Mango	𝍸 𝍸 𝍸 ||	(17)
Total	(7 × 5) + (3 + 2) = 35 + 5 = 40	(40)

- Ask:
  a. **Who would like to come to the board to fill in the total number of learners whose favourite fruit is apples?** (10)
  b. **Who would like to come to the board to fill in the total number of learners whose favourite fruit is bananas?** (13)
  c. **Who would like to come to the board to fill in the total number of learners whose favourite fruit is mangoes?** (17)
  d. **What is the total number of learners?** (Add up the numbers in the third column to get 40)
  e. **How did you get find the total number of learners in the tally column?** (There are 7 groups of 5. This makes 35. 3 and 2 loose tallies make 5. So 35 and 5 is 40 OR 10 + 13 + 17 = 40)

- Say: **The numbers of bottom of Tally column and Total column must be the same, because we are talking about the same information.**

Note: If learners struggle to answer these questions, do not worry as these concepts are revised in Activity 24.

3 CORRECT HOMEWORK ACTIVITY

This is the first lesson for this topic. There is no homework to correct.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (40 MINUTES)

In this lesson, learners use tally tables and frequency tables to organise data. Learners worked with tally tables in Grade 3, so this lesson is largely a revision lesson. The term frequency (rather than total) is introduced in Grade 4.

Say: **Today we are organising data in tables and answering questions on the data.**

Activity 1: Whole class activity and learners work on their own

- Say: **Let's develop a tally chart to show the favourite cool drinks in this class.**
- Say: **In your LAB, you have a tally table like this:**

Favourite cool drink	Tallies	Frequency
Coca Cola		
Fanta Grape		
Fanta Orange		
Sprite		
Other		
TOTAL		

- Ask:
  a. **Who would like to explain what '|' means in tally marks?**
     (We use each | to stand for one item or thing.)
  b. **How do you draw tally marks for three?** (|||) **Five?** (𝍸)
     (Let some learners come and draw on the board)

- Say: **I will give each of you a chance to tell the class what your favourite cool drink is. You choose one of the four cool drinks on the list or tell us whether you like a different cool drink. We will record them as 'other'.**
  (Depending on the size of the class, you may decide to select only half the class to tell you their favourite cool drink.)
- Say: **Record each person's favourite drink in the tally table in your LAB. I will record them in my tally table.**
  - Give each learner the opportunity to state his/ her favourite cool drink. Check that learners record the tallies as you take note in your notebook. Make sure the total number of tallies are the same as today's attendance.

- Say: **Now that we have recorded each person's favourite cool drink, let's work out the frequency of each cool drink. The frequency is the total number of learners that like each cool drink.**
  (Frequencies depend on specific data gathered by your class. Learners should get the same totals)

- Ask: **Which is the most popular, or favourite, cool drink in this class?**
  (Answer will depend on specific data gathered by your class.)

Favourite cool drink	Tallies	Frequency
Coca Cola		
Fanta Grape		
Fanta Orange		
Sprite		
Other		
TOTAL		

- Say: **In this cell we write the total of the frequencies:**
  Let learners write the total of the frequencies. (Answer will depend on specific data gathered by your class. Learners may add all frequencies or count tallies in 5s)

- Ask: **Sibu says that the total should be the same as the number of learners in class today.**
  Is Sibu correct? Give a reason for your answer.
  (Yes. Each tally mark represents one learner)

- Let learners check the number of learners present on that day. If it is not the same as the total of the frequency, then their data collection was not correctly done.

- Ask: **Who got the correct total? Please would you read out your frequencies so that the whole class can check their answers.**
  Choose one of the learners to present their answers to the class and allow the class time to write down the correct frequencies.

Activity 2: Learners work on their own

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

- Walk around the classroom to support learners as needed.
- Correct Activity 2 with learners so that they can receive immediate feedback.
- Answers in brackets.

1. What numbers do these tally marks represent?

		Answer			Answer
a	𝍸	(4)	**b**	𝍸	(5)
c	𝍸 𝍸	(9)	**d**	𝍸 𝍸 𝍸	(14)
e	𝍸 𝍸	(10)	**f**	𝍸 𝍸	(6)

2. The Grade 4 class were asked to find out how many buses, motor bikes, trucks, motor cars, taxis and bicycles went past their school one morning.

They worked together and recorded their data in this tally table.

a. Calculate the frequency of each type of vehicle (example: bus, motor bike) and then calculate the total number of vehicles that went past their school that morning.

Number of vehicles passing the school one morning		
	Tallies	**Frequency**
Buses	𝍸	(5)
Motor bikes	𝍸 𝍸	(11)
Trucks	𝍸 𝍸 𝍸	(17)
Motor cars	𝍸 𝍸 𝍸 𝍸 𝍸	(26)
Taxis	𝍸 𝍸 𝍸	(19)
Bicycles	𝍸	(7)
TOTAL		(85)

b. Use the tally table to answer these questions:

How many more motor cars than buses went past the school? (26 – 5 = 21)

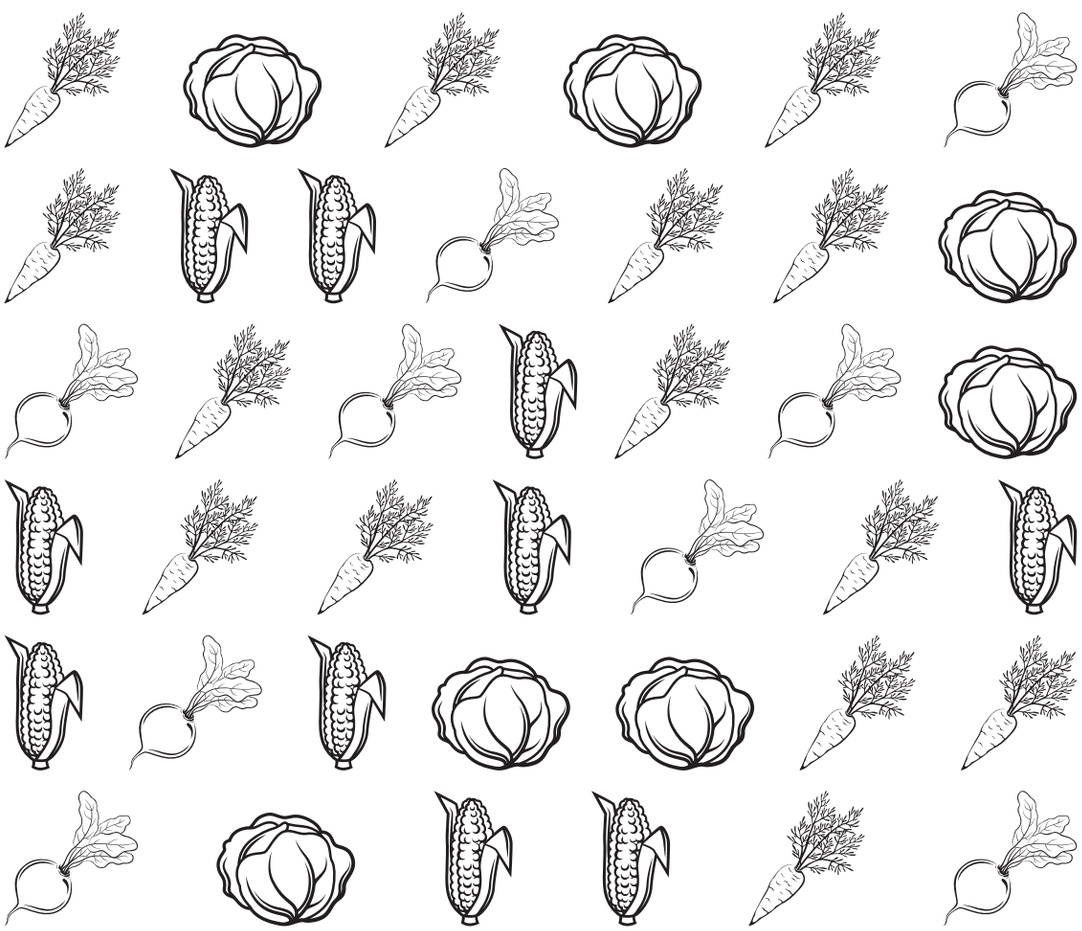
How many more taxis than bicycles went past the school? (19 – 7 = 12)

Activity 3: Learners work in pairs

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

- Walk around the classroom to support learners as needed.
- Correct Activity 3 with learners so that they can receive immediate feedback.
- Answers in brackets.

The Grade 4 class were asked "Which of the following vegetables do you like the most: carrots, beetroot, cabbage or mealies?". Their answers were recorded using drawings.



Key	
Learners who prefer carrots	
Learners who prefer beetroot	
Learners who prefer cabbage	
Learners who prefer mealies	

1. **a.** Record the data in the tally table.

b. Record the frequency of each type of vegetable.

	Vegetable	Tallies	Frequency	
Write the four vegetables here	(Carrots)	(𝍸 𝍸 ||||)	(14)	Write the total for each vegetable here
	(Beetroot)	(𝍸 ||||)	(9)	
	(Cabbage)	(𝍸 ||)	(7)	
	(Mealies)	(𝍸 𝍸)	(10)	
			(40)	

Write the total number of learners here

2. Use your tally and frequency table to answer these questions:

a. Which vegetable did the most learners like? (carrots)

b. What vegetable did the least learners like? (cabbage)

c. How many learners like beetroot? (Nine / 9)

d. How many learners answered the question? (40)

e. What is the difference between the most popular vegetable and the least popular vegetable?
(14 – 7 = 7)

5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain to learners what they need to do for homework.
- Read the question in the LAB with learners. Make sure all the learners understand what to do.
- Answers in brackets.

1. Complete the table by filling in the frequencies and the total number.

Tallies	Frequency
𝍸 𝍸 |	(11)
𝍸 𝍸	(10)
𝍸 𝍸 𝍸 ||||	(19)
𝍸	(5)
|||	(3)
𝍸 𝍸 𝍸	(15)
Total	**(63)**

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 revised tally tables and learnt how to work out the frequency from the Tallies.**

Lesson 24: Classify and organise data (1)

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum. CAPS topics: 5.1 Collecting and organising data Lesson Objective: Learners will be able to organise data so that they can examine two things at once. Lesson Vocabulary: data, two-way table, location Resources: none		
Date:	Week	Day

1 MENTAL MATHS (5 MINUTES)

		Answers
1	Start at 270 and count up in 10s until you reach 350.	270; 280; 290; 300; 310; 320; 330; 340; 350
2	Start at 820 and count down in 10s until you reach 740	820; 810; 800. 790; 780; 770; 760; 750; 740
3	Start at 590 and count up in 10s until you reach 670.	590; 600; 610; 620; 630; 640; 650; 660; 670
4	Start at 310 and count down in 10s until you reach 230	310; 300; 290; 280; 270; 260; 250; 240; 230
5	Start at 910 and count up in 10s until you reach 990	910; 920; 930; 940; 950; 960; 970; 980; 990
6	Start at 750 and count down in 10s until you reach 670.	750; 740; 730; 720; 710; 700; 690; 680; 670

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Refer learners to the table: 'Most common shoe size' in the LAB.
- Say: **Complete the table in the LAB.**

Answers:

Most common shoe size		
Shoe size	**Tallies**	**Frequency**
1	|||	(3)
2	𝍸 ||	(7)
3	𝍸 𝍸 ||||	(14)
4	𝍸 ||||	(9)
5	𝍸 𝍸 |	11
Total		(44)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 24 are provided in Lesson 24.
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 find out how to organise data so that they can examine two things at once. In Activity 1, the teacher supports the learners as they develop a two-way table which combines data from two separate tables.

Say: **Today we are learning to organise data in a table.**

Activity 1: Whole class activity and learners work in pairs

- Refer learners to Activity 1 in the LAB. Work through the whole of Activity 1 together with learners.
- Refer to the answers in this Lesson Plan for additional support as you work through Activity 1.
- Correct work as you go along so that learners do not carry errors from one question to the next.

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

On Friday the Grade 4 class collected data on litter in the school.

They recorded the data in this table:

Table 1:

A	B
Where the litter was found	**Type of litter**
tuckshop	chip packet
playground	cool drink can
school gate	sweet paper
playground	sweet paper
inside classroom	scrap paper
tuckshop	cool drink can
playground	sweet paper
tuckshop	chip packet
tuckshop	chip packet
inside classroom	scrap paper
tuckshop	cool drink can
school gate	sweet paper
inside classroom	scrap paper
tuckshop	chip packet
playground	cool drink can
tuckshop	chip packet
tuckshop	chip packet
school gate	sweet paper

1. Study Table 1.

a. What data is listed in Column A? (Where the litter was found)

b. What data is listed in Column B? (Type of litter)

2. The learners want to use the data in Table 1 to answer the question:
Where was the most litter found?

a. Complete this tally and frequency table:

Table 2:

Where the little was found	**Tallies**	**Frequency**
tuckshop	(𝍸 |||)	(8)
school gate	(|||)	(3)
inside classroom	(|||)	(3)
playground	(||||)	(4)
Total		(18)

b. Where was most litter found? (Tuckshop)
c. Does Table 2 help you to answer the question:
Where was the most litter found? (Yes)

3. The learners want to use the data to answer the question:
Which type of litter was most common on that day?

a. Complete this tally and frequency table:

Table 3:

Type of litter	Tallies	Frequency
chip packet	(𝍸 |)	(6)
cool drink can	(||||)	(4)
sweet paper	(𝍸)	(5)
scrap paper	(|||)	(3)
Total		(18)

b. How much litter was found altogether? (18 pieces)
c. Which type of litter is most common? (Chip packets)
d. Does Table 3 help you to answer the question:
Which type of litter was most common on that day? (Yes)

Activity 2: Whole class activity and learners work in pairs

- Say: **We are going to carry on with the litter question.**
  Say: **We now want to find out which type of litter is found where.**

  Say: **Go back to Table 1. Go to each place where the litter is found and count up the types of litter found there.**
  Ask: **How many pieces of litter were found at the tuck shop?** (8)
  Ask: **How many chip packets were found at the tuck shop?** (6)
  Ask: **How many cool drink cans were found at the tuck shop?** (2)
  Ask: **How many sweet papers were found at the tuck shop?** (0)
  Ask: **How many pieces of scrap paper were found at the tuck shop?** (0)

- Say: **We are going to record this information in another table which we call a *two-way table*.**
  Say: **Turn to Table 4 in Activity 2 in your LAB.**
  Say: **We want to answer the question:**
  Which type of litter was found at each place where litter was found?

- Say: **Let's start off with the first location. What is it?** (The tuckshop)
  Say: **Use tallies to fill in the information we have found out in the first row.**
  Say: **Now use tallies to collect the rest of the information.**

  Table 4:

Type of litter / Where found	Chip packet	Cool drink cans	Sweet papers	Scrap paper	TOTAL
Tuckshop	𝍸 |	(| |)			(8)
School gate			(| |)		
Inside classroom				(| |)	
Playground		(|)	(|)		
TOTAL					

- Say: **Now rewrite numbers instead of tallies in Table 5 and find the totals.**

  Table 5:

Type of litter / Where found	Chip packet	Cool drink cans	Sweet papers	Scrap paper	TOTAL
Tuckshop	(6)	(2)	(0)	(0)	(8)
School gate	(0)	(0)	(3)	(0)	(3)
Inside classroom	(0)	(0)	(0)	(3)	(3)
Playground	(0)	(2)	(2)	(0)	(4)
TOTAL	(6)	(4)	(5)	(3)	(18)

- Say: **Add the bottom totals together: 6 + 4 + 5 + 3. What do you get?** (18)
  Say: **Add the vertical totals together: 8 + 3 + 3 + 4. What do you get?** (18)
  Say: **Can you see that the two totals are the same?**
  Say: **We use the fact that the two totals are equal to check that we have recorded the numbers correctly.**

Say: **Now complete Activity 2 in your LAB.**

Use Table 5 to answer these questions:

1 Where were the chip packets found?
(The chip packets were all found at the tuckshop.)

2 Where were the cool drink cans found?
(The cool drink cans were found at the tuckshop and at the playground)

3 Where were the sweet papers found?
(The sweet papers were found at the school gate and in the playground)

4 Where was the scrap paper found? (The scrap paper was found inside classroom)

5 How many cool drink cans were found in the playground? (2)

6 Where was most sweet paper found?
(The most sweet papers were found at the school gate)

7 Where would be the best place to put an extra rubbish bin? Give a reason for your answer.
(Outside the tuckshop because that is where most litter was found.)

5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain to learners what they need to do for homework.
- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Answers in brackets.

Use the two-way table to answer the questions.

Type of polygon / Colour	Square	Triangle	Hexagon	TOTAL
Red	2	1	0	3
Blue	3	2	3	8
Yellow	5	4	5	14
TOTAL	10	7	8	25

1 How many red squares are there? (2)
2 How many blue triangles are there? (2)
3 How many hexagons are there altogether? (8)
4 How many different colours are there? (3)
5 How many polygons are yellow? (5 + 4 + 5 = 14)

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 learned to organise data in a two-way table and how to read a two-way table.**

Lesson 25: Classify and organise data (2)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 5.2 Representing data 5.3 Analysing, interpreting and reporting data
Lesson Objective: Learners will be able to represent, analyse and interpret data in a two-way table.
Lesson Vocabulary: two-way table, survey
Teacher Resources needed for this lesson: A3 Distance chart, long ruler
Learner Resources needed for this lesson: Ruler
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

		Answers
1	Start at 0 and count up in 20s until you reach 180.	0, 20; 40; 60; 80; 100; 120; 140; 160; 180
2	Start at 960 and count down in 20s until you reach 800	960; 940; 920; 900; 880; 860; 840; 820; 800
3	Start at 560 and count up in 20s until you reach 720.	560; 580; 600; 620; 640; 660; 680; 700; 720
4	Start at 700 and count down in 20s until you reach 540	700; 680; 660; 640; 620; 600; 580; 560; 540
5	Start at 380 and count up in 20s until you reach 540.	380; 400; 420; 440; 460; 480; 500; 520; 540
6	Start at 620 and count down in 20s until you reach 460	620; 600; 580; 560; 540; 520; 500; 480; 460

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Refer learners to this table from the Homework activity in Lesson 25.

Type of polygon / Colour	Square	Triangle	Hexagon	TOTAL
Red	2	1	0	3
Blue	3	2	3	8
Yellow	5	4	5	14
TOTAL	10	7	8	25

As the following questions:

1 How many yellow squares are there? (5)
2 How many squares are there altogether? (10)
3 How many different polygons are there? (3: square, triangle and hexagon)
4 How many of the polygons are blue? (3 + 2 + 3 = 8)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 24 are provided in Lesson 24.

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 continue to work with two-way tables. The ability to read tables is a valuable skill in mathematics and everyday life.

A *distance table* is a grid that shows the *distances* between two places. The table being used in this lesson shows distances in kilometres.

Say: **Today we are learning to work with a distance table.**

Activity 1: Whole class activity and learners work on their own

- Use the Distance Table from the Teacher's Resource Pack. You will also need a long ruler.
  Refer learners to the Distance Table in the LAB.

- Say: **We can use a table like this to find the distance between cities.**

- Say: **Let's find the distance between Johannesburg and Pretoria.**
  Say, as you demonstrate how to locate the correct cell on the table: **Place your ruler on the line beneath Johannesburg. Move your finger along the line till you get to the Pretoria column.**
  Say: **The cell found where the Johannesburg row and the Pretoria column cross is where we find the distance, in kilometres, between Johannesburg and Pretoria.**
  Ask: **What is the distance between Johannesburg and Pretoria?** (58 km)

									Pretoria
								Port Elizabeth	1120
							Polokwane	1393	273
						Mbombela	320	1373	342
					Mafikeng	589	565	1122	292
				Kimberley	360	832	805	752	532
			Johannesburg	467	273	358	331	1062	58
		East London	992						
	Durban	667	598	842	859	689	929	927	656
Cape Town	1660	1042	1402	960	1320	1779	1736	756	7463
Bloemfontein 998	667	575	417	175	427	771	748	635	475

- Repeat the process to find the distance between Durban and Polokwane (929 km)

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

- Walk around the classroom to support learners as needed.
- Correct Activity 3 with learners so that they can receive immediate feedback.
- Answers in brackets.

Table showing distances, in kilometres, between places in South Africa

									Pretoria
								Port Elizabeth	1120
							Polokwane	1393	273
						Mbombela	320	1373	342
					Mafikeng	589	565	1122	292
				Kimberley	360	832	805	752	532
			Johannesburg	467	273	358	331	1062	58
		East London	992	750	7029	1214	1323	300	1050
	Durban	667	598	842	859	689	929	927	656
Cape Town	1660	1042	1402	960	1320	1779	1736	756	7463
Bloemfontein 998	667	575	417	175	427	771	748	635	475

Find the distance between:		Answer
1	Bloemfontein and Cape Town	(998) km
2	Mafikeng and Pretoria	(292) km
3	East London and Mbombela	(1 214) km
4	Kimberley and Port Elizabeth	(752) km
5	Durban and Bloemfontein	(667) km

Activity 2: Learners work in pairs

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

- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Correct Activity 2 with learners so that they can receive immediate feedback.
- Answers are in brackets.

The Grade 4 learners conducted a survey to find out whether the learners in the class preferred a horse, a dog, a lion or an elephant.
They recorded the data in this table:

Table 1:

Boy/ Girl	Favourite animal
Boy	Horse
Girl	Horse
Girl	Dog
Boy	Lion
Boy	Dog
Girl	Dog
Girl	Lion
Boy	Horse
Girl	Dog
Girl	Elephant
Girl	Elephant
Boy	Lion
Girl	Dog
Boy	Elephant
Girl	Elephant
Boy	Lion
Boy	Horse
Girl	Dog
Boy	Lion
Girl	Dog

1. We first have to answer the question: 'How many boys and how many girls were surveyed?'

a. Use tallies to find out how many boys there are, how many girls there are and how many learners were surveyed.

Table 2:

	Tallies	Frequency
Boy	(𝍸 ||||)	(9)
Girl	(𝍸 𝍸 |)	(11)
Total		(20)

b. How many girls were surveyed? (11)

c. How many more girls were surveyed than boys? (11 – 9 = 2)

2. We have to answer the question: 'Which animal is the learners' favourite?'

a. Use tallies to find out which animals the children liked the most.

Table 3:

	Tallies	Frequency
Lion	(𝍸)	(5)
Dog	(𝍸 ||)	(7)
Horse	(||||)	(4)
Elephant	(||||)	(4)
Total		(20)

b. Is the total for Table 2 and Table 3 the same?
(Yes, the total is 20. That means our tallies are correct.)

c. How many learners said a dog is their favourite animal? (7)

d. How many learners said an elephant is their favourite animal? (4)

3. The learners want to answer the questions: 'Which animal is the girls' favourite? And which animal is the boys' least favourite?' so they drew a two-way table.

a. Use tallies to find out which animal the boys and girls prefer.

Favourite animal / Boy or girl	Lion	Dog	Horse	Elephant	TOTAL
Boys	(||||)	(|)	(|||)	(|)	
Girls	(|)	(𝍸 |)	(|)	(|||)	
TOTAL					

b. Replace the tallies with numbers and find the totals.

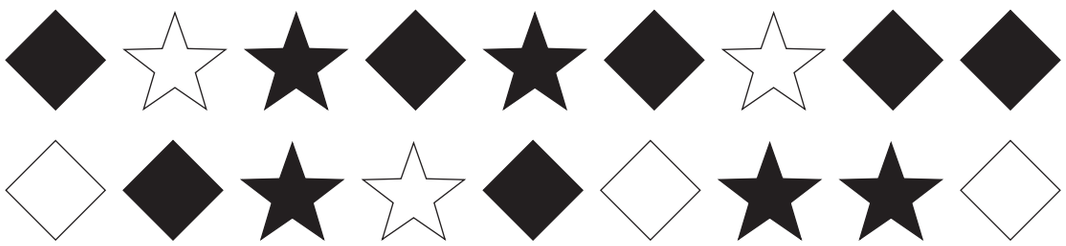
Favourite animal / Boy or girl	Lion	Dog	Horse	Elephant	TOTAL
Boys	(4)	(1)	(3)	(1)	(9)
Girls	(1)	(6)	(1)	(3)	(11)
TOTAL	(5)	(7)	(4)	(4)	(20)

c. What is the girls' favourite animal? (Dog)
d. Which animals are the boys' least favourite animals? (Dog and elephant)
e. How many girls said a lion was their favourite animal? (1)

5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain what learners need to do for homework.
- Make sure all the learners understand what to do.
- Answers in brackets.

1 Record the information about the 2D shapes in the table.



	Square	Star	Total
Black	(7)	(5)	(12)
White	(3)	(3)	(6)
Total	(10)	(8)	(18)

2. a How many black stars are there? (5)
b How many white 2D shapes are there? (3 + 3 = 6)
c How many squares are there altogether? (10)

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 work with two-way tables.**

Lesson 26: Bar graphs (1)

Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.

CAPS topics: 5.2 Representing data
5.3 Analysing, interpreting and reporting data

Lesson Objective: Learners will be able to organise and represent data in a bar graph and analyse bar graphs.

Lesson Vocabulary: data, organise, table, bar graph, axis/ axes, label, graph heading, vertical axis, horizontal axis, represent, more, less, few, fewer, forwards, backwards, calculate, rhino, poacher

Teacher Resources: A3 poster of a grid, laminated; non-permanent pen

Start collecting pictographs from old newspapers, magazines and advertisements.

Date: Week Day

1 MENTAL MATHS (5 MINUTES)

		Answers
1	Start at 0 and count up in 25s until you reach 200.	0, 25, 50; 75; 100; 125; 150; 175; 200
2	Start at 200 and count down in 25s until you reach 100	200; 275; 250; 225; 200; 175; 150; 125; 100
3	Start at 150 and count up in 25s until you reach 350.	150; 175; 200; 225; 250; 275; 300; 325; 350
4	Start at 400 and count down in 25s until you reach 200	400; 375; 350; 325; 300; 275; 250; 225; 200
5	Start at 550 and count up in 25s until you reach 750.	550; 575; 600; 625; 650; 675; 700; 725; 750
6	Start at 725 and count down in 25s until you reach 525	725; 700; 675; 650; 625; 600; 575; 550; 525

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Refer learners to Table 5 in Activity 2, Lesson 25

Favourite animal / Boy or girl	Lion	Dog	Horse	Elephant	TOTAL
Boys	4	1	3	1	9
Girls	1	6	1	3	11
TOTAL	5	7	4	4	20

- Ask: **How many children said lions are their favourite animal?** (5)
  Ask: **How many girls said elephants are their favourite animal?** (3)
  Ask: **How many more girls than boys said dogs are their favourite animal?** (6 – 1 = 5)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 25 are provided in Lesson 25.
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 focus of this lesson is the representation and analysis of data in a bar graph.
In Grade 3, learners were given the intervals for the bar graphs they drew. In this lesson, which is largely revision of the Grade 3 work on bar graphs, learners are also given the intervals. In the next lesson learners will find out how to work out intervals themselves.

Make sure that learners understand that the height of the bars represents a data amount.

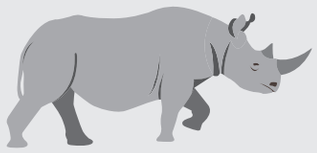
Say: **Today we are revising how to draw and interpret bar graphs.**

Activity 1: Whole class activity and learners work on their own

- Stick the A3 laminated grid on the board.
  The learners use the information and grid given in the LAB.

- Discuss poaching with the learners and read the following information in the LAB with the learners:

It is sad that every year rhinos are killed by poachers.



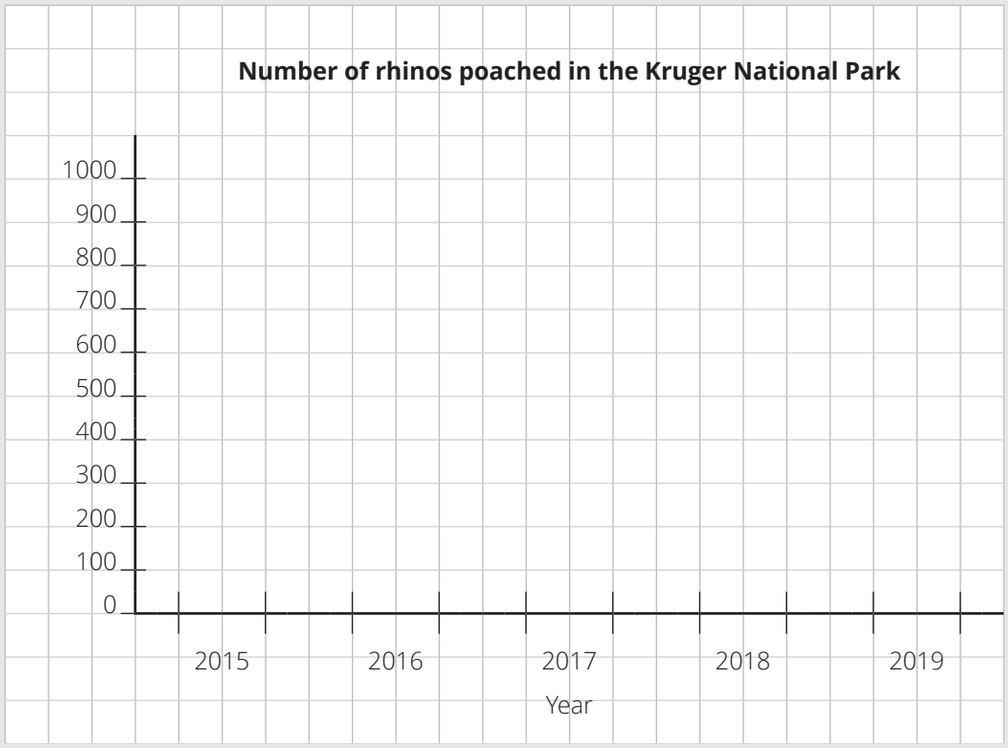
Poaching is illegal hunting

Data about rhino poaching in the Kruger National Park

Rhino poached in the Kruger National Park					
Year	**2015**	**2016**	**2017**	**2018**	**2019**
Number of rhino poached	850	700	500	450	600

- Say: **We want to draw a bar graph to show this information.**

- Ask: **Look at the grid in your LAB. Can you see that a horizontal axis and a vertical axis has been drawn on the grid?**
  Say: **The horizontal axis goes across the page. The vertical axis goes up and down the page.**



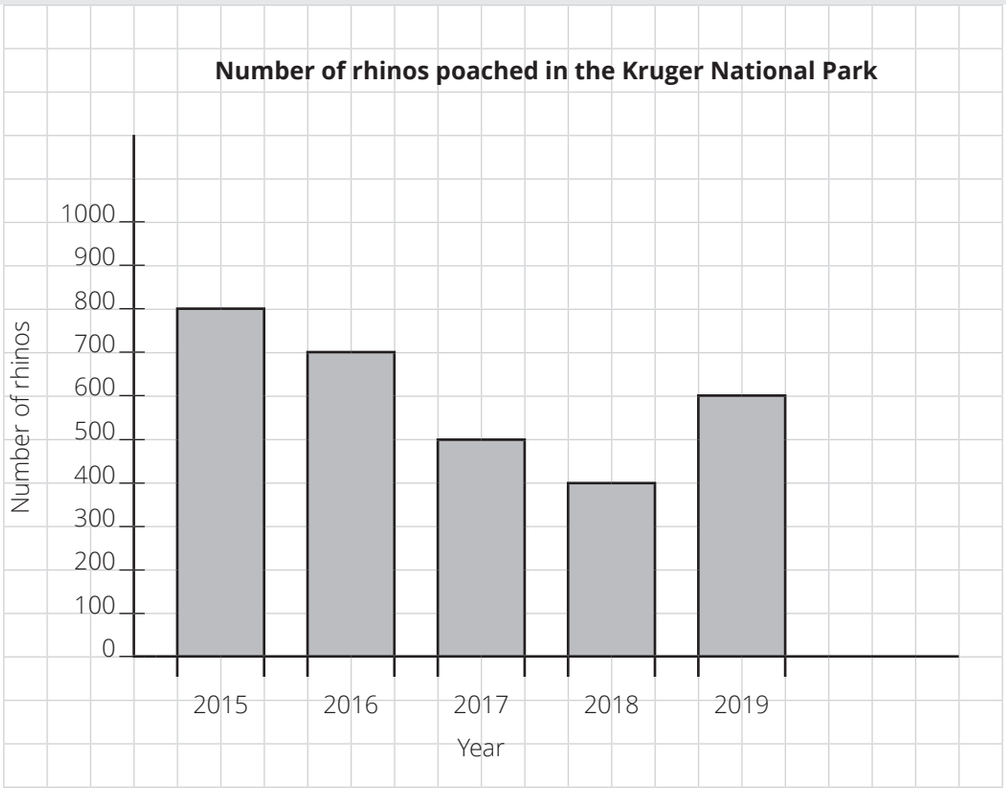
- Ask: **What is the title of the graph?**
  (Number of rhinos poached in the Kruger National Park.)

- Ask: **What is the label on the horizontal axis?** (Year)
  Ask: **Which years are shown on the horizontal axis?** (2015, 2016, 2017, 2018, 2019)
  Say: **Can you see that there are equal spaces between the years?** (Yes)

- Ask: **What is the label on the vertical axis?** (Number of rhinos)
  Ask: **What numbers are shown on the vertical axis?** (from 0 up to 1 000)
  Say: **Can you see that there are equal spaces between the numbers?** (Yes)

- Say: **Use the data from the table to draw the bar for each year.**
  Say: **The height of each bar should match the number of rhinos.**

- Work together with the learners to draw a graph that looks like this:



2. Use the bar graph as you answer the questions.

a. In which year were most rhinos poached? (2015)

b. How many more rhinos were poached in 2015 than in 2016? (800 – 700 = 100)

c. Between 2015 and 2018, did the number of rhinos poached increase or decrease? (decrease)

d. Between 2018 and 2019, did the number of rhinos poached increase or decrease? (increase)

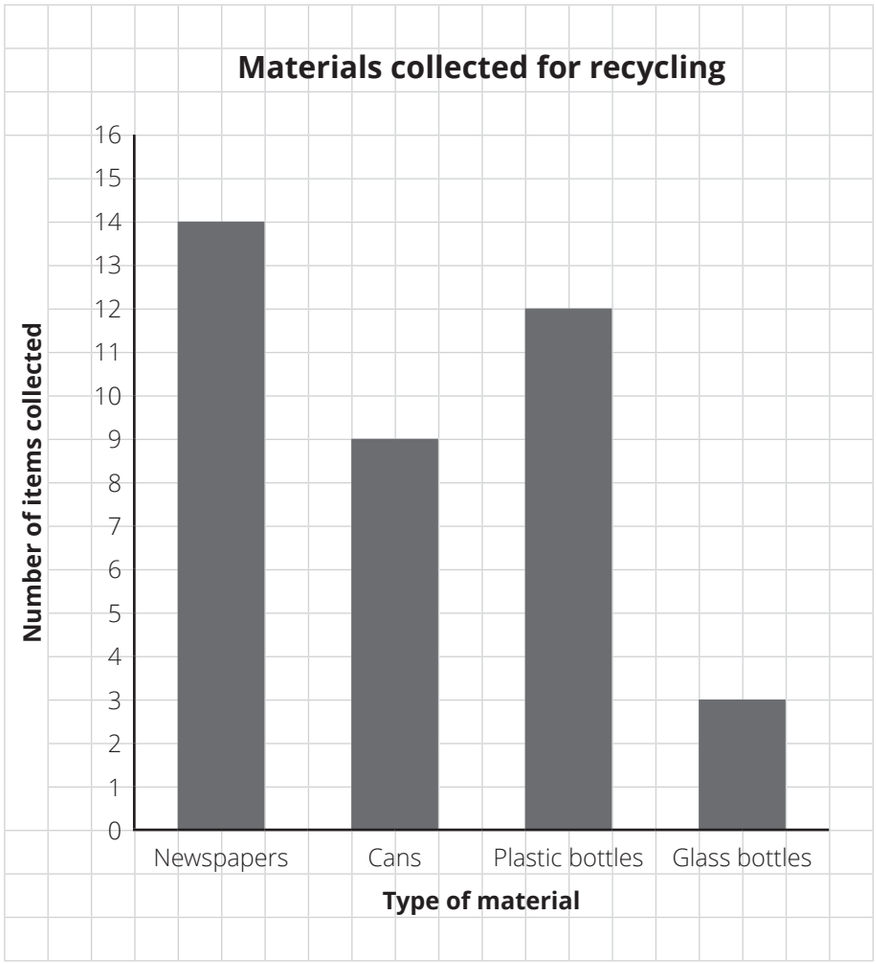
Activity 2: Learners work on their own

Say: **Complete Activity 2 on your own**

- Read the questions in the LAB with learners. Make sure all the learners understand what to do.
- Walk around the classroom to support learners as needed.
- Correct Activity 2 with learners so that they can receive immediate feedback.

A Grade 4 class collected material for a recycling project.

They drew a graph to show the number of pieces of each type of material the learners collected.



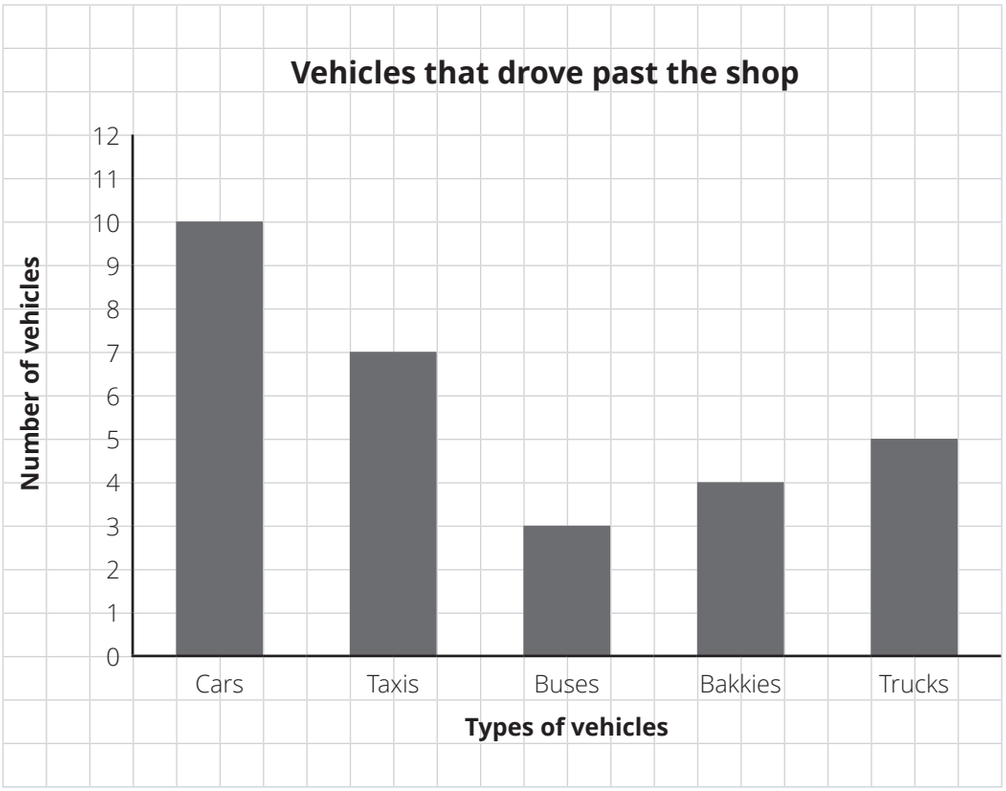
Use the graph to answer the questions.

1. What do the four bars represent? (The types of material the Grade 4 class collected)
2. Which type of material did the learners collect most of? (Newspapers)
3. How many glass bottles were collected? (3)
4. How many more plastic bottles than glass bottles did learners collect? (12 – 3 = 9, 9 more)
5. How many items did they collect altogether? (14 + 9 + 12 + 3 = 38)
6. Write the types of material collected in order of the least material collected to the most material collected. (Glass bottles, cans, plastic bottles, newspapers)

5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain what learners need to do for homework.
- Make sure all the learners understand what to do.
- Answers in brackets.

The bar graph shows the number of vehicles that drove past a shop in half an hour



Look at the bar graph as you answer the questions.

1 How many bakkies drove past the shop? (4)
2 How many cars drove past the shop? (10)
3 How many more trucks than bakkies drove past the shop? (5 – 4 = 1, 1 less)
4 How many vehicles drove past the shop altogether in that half an hour? (10 + 7 + 3 + 4 + 5 = 29)

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 learned to organise and represent data in a bar graph, and to analyse bar graphs.**

Lesson 27: Intervals on a bar graph (1)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum. CAPS topics: 5.2 Representing data Lesson Objective: Learners will be able to work out intervals when drawing bar graphs. Lesson Vocabulary: interval, popular, number line, horizontal, vertical, bar graph, data, gap, frequency table Teacher Resources: Blank number line Learner Resources: Blank number line Start collecting pictographs from old newspapers, magazines and advertisements, or the internet
Date: Week Day

TEACHER'S RESOURCE PACK

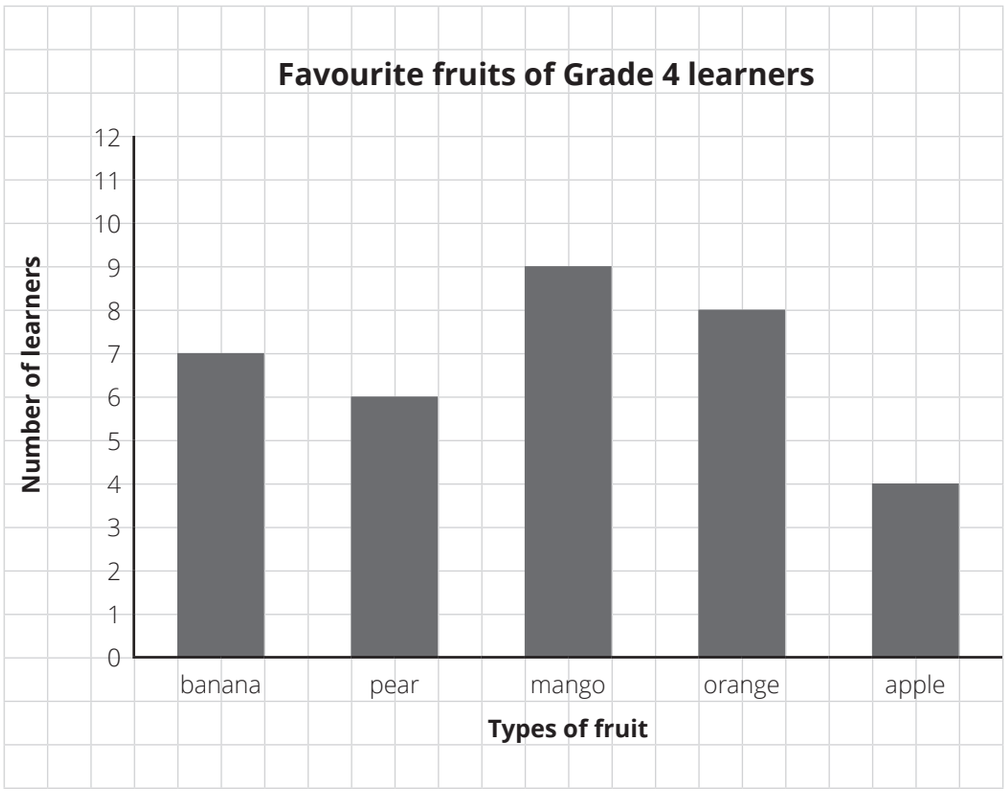
Blank number line

1 MENTAL MATHS (5 MINUTES)

		Answers
1	Start at 850 and count up in 25s until you reach 1 000.	850; 875; 900; 925; 950; 975; 1 000
2	Start at 900 and count down in 25s until you reach 725.	900; 875; 850; 825; 800; 775; 750; 725
3	Start at 625 and count up in 25s until you reach 775.	625; 650; 675; 700; 725; 750; 775
4	Start at 450 and count down in 25s until you reach 275	450; 425; 400; 375; 350; 325; 300; 275
5	Start at 375 and count up in 25s until you reach 575.	375; 400; 425; 450; 475; 500; 525; 550; 575
6	Start at 525 and count down in 25s until you reach 325	525; 500; 475; 450; 425; 400; 375; 350; 325

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Refer learners to the bar graph in their LAB.



- Ask: **How many learners participated in the survey?**
  (7 + 6 + 9 + 8 + 4 = 34, 34 learners)
- Ask: **Which is the second most popular fruit?** (Orange)
- Ask: **What is the difference between the number of learners who liked the most popular fruit and number of learners who liked the least popular fruit?**
  (9 – 4 = 5, 5 learners)
- Say: **Ask the class a question about the graph.**
  (Answers will vary. Check that the question is reasonable, and the answer matches the question)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 26 are provided in Lesson 26.

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 find out how to work out appropriate intervals to use in bar graphs. Learners should know that an interval is the gap between categories or numbers, for example on a number line. Until now, learners have been given the intervals to use. While most learners will probably recognise the horizontal axis as a form of number line, they might need to be reminded that the vertical axis is a number line placed vertically.

Say: **Today we are learning to work out the intervals we should use in a bar graph.**

Activity 1: Whole class activity and learners work on their own

- Place number line on vertically on the board and write the values on the board

- Ask, pointing at the number line: **What do we call this line?** (A number line)
  Say: **This is a *number line*.**

- Say, as you move the number line from a vertical orientation to a horizontal orientation: **You are more used to seeing number lines drawn *horizontally* like this, but when we draw graphs, we use *horizontal* and *vertical* number lines.**

- Ask: **What are the numbers on this number line?**
  (Multiples of 10, counting in 10s)
  Say: **We can also say 'The *interval* on this *number line* is 10'.**
  Let learners repeat the terminology several times.

- Say: **Remember that the *interval* is the gap between numbers on a number line.**
  Ask: **What other intervals have you seen on a number line?**
  (1, 5, 20, 100, the answers vary)
  Say: **The intervals can be different on different number lines, but the intervals on the same number line must be the same.**

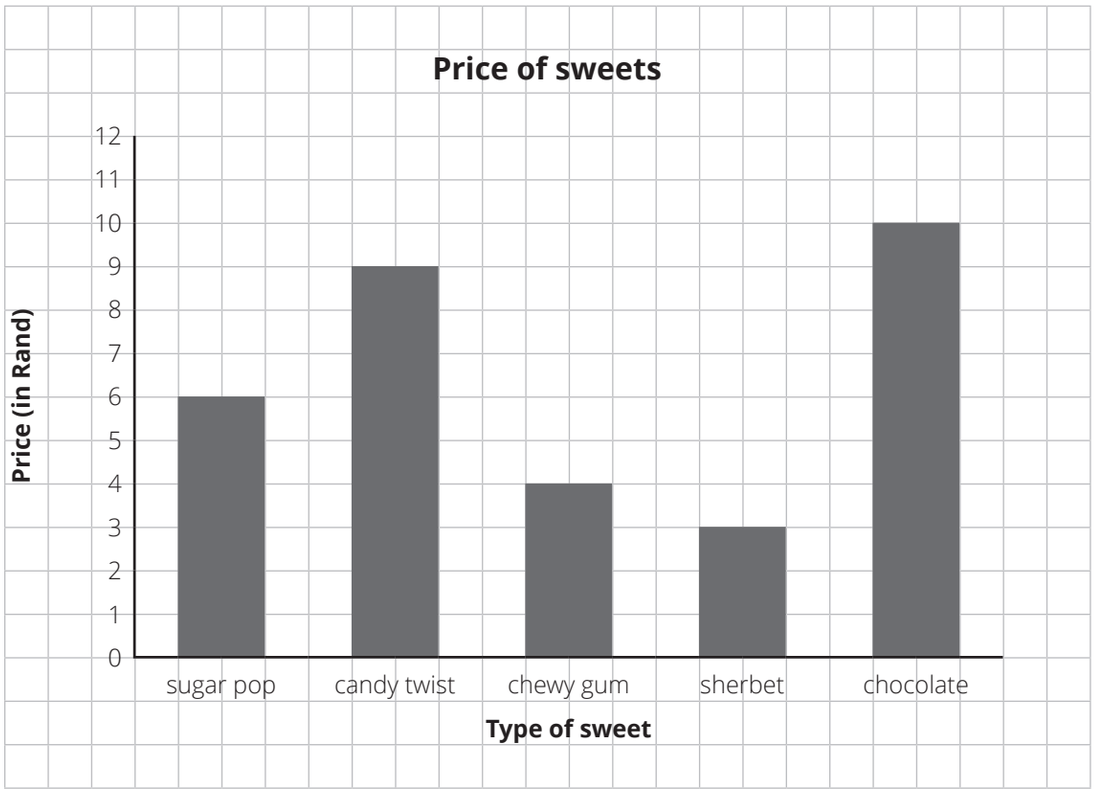
Activity 2: Whole class activity and learners work in pairs

- Walk around the classroom to support learners as needed.
- Make sure that learners understand what they need to do. Pay particular attention to the vocabulary used in the activity.
- Correct Activity 2 with learners so that they can receive immediate feedback.

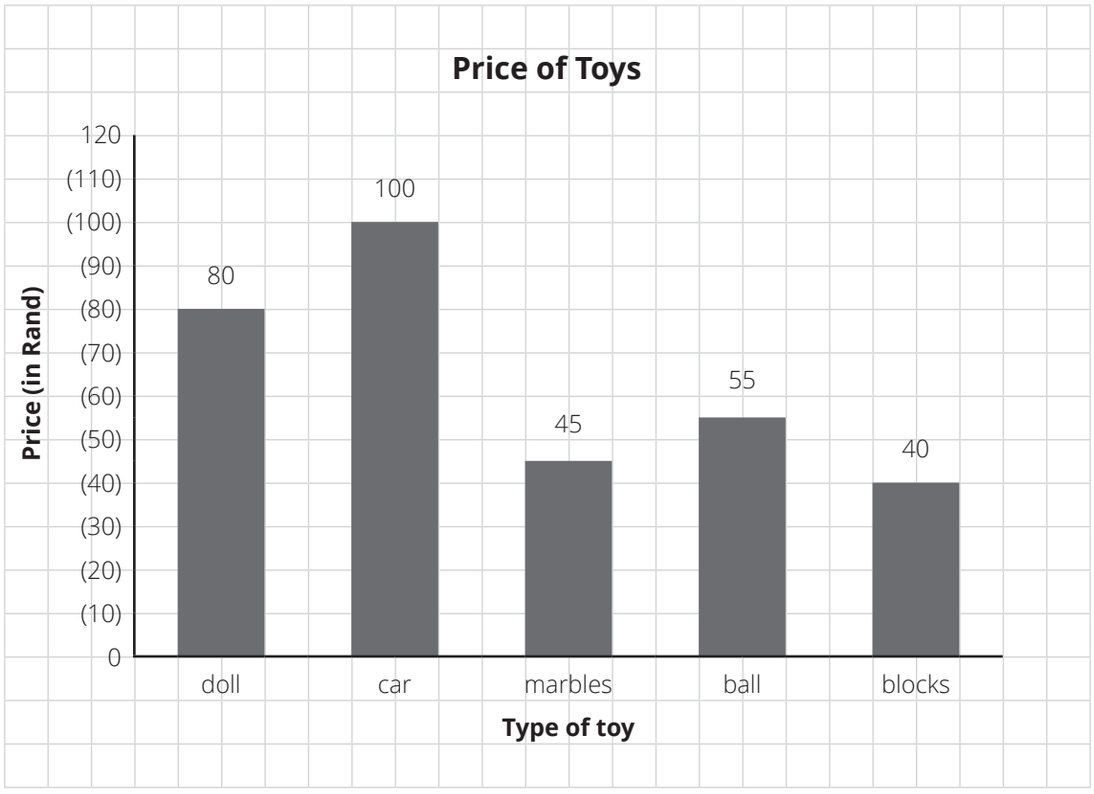
1. The table shows the price of sweets.

Sweet	Price (rand)
Sugar pop	6
Candy twist	9
Chewy gum	4
Sherbet	3
Chocolate	10

a. What is the biggest number? (10)
b. What is the smallest number? (3)
c. What interval do you think should you use for one space on the vertical axis? (1)
d. Give a reason for your answer.
(The numbers start at 3 and end at 10. We can count in ones from zero to ten without making the vertical axis too long or too short)
e. Complete the bar graph.



2. The graph shows the price of toys.



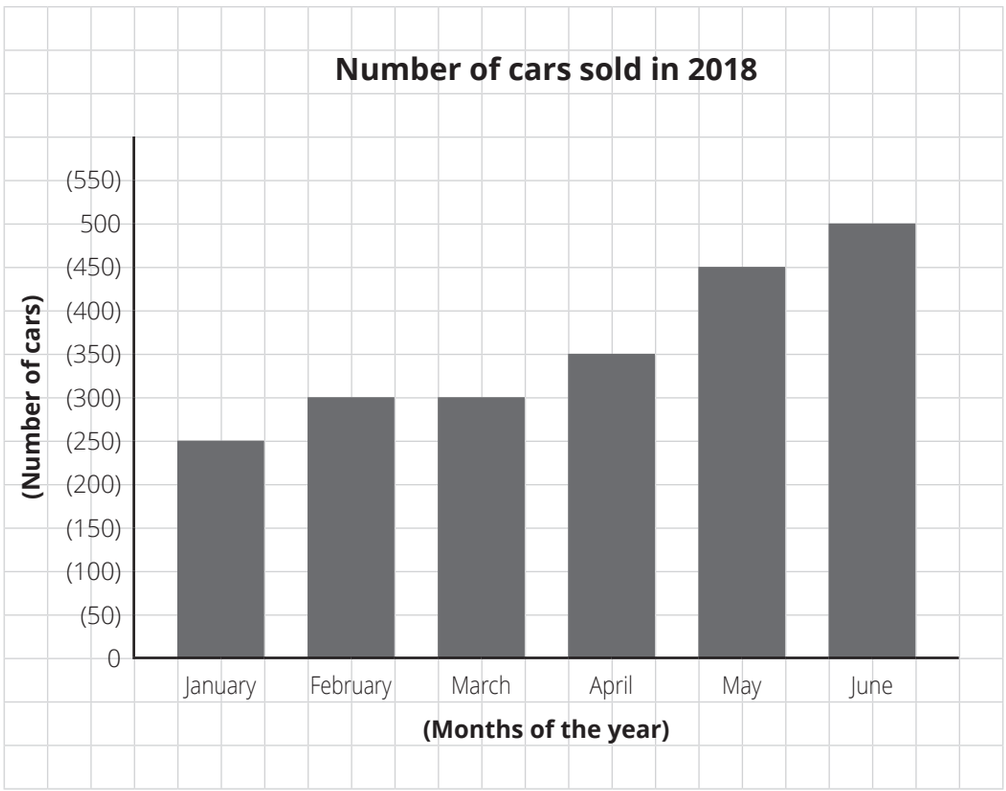
a. What is the interval on the vertical axis? (10)
b. Write all the numbers on the vertical axis. (See graph)
c. Write the price of each toy on the top of each bar.

Activity 3: Learners work on their own

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

- Walk around the classroom to support learners as needed.
- Make sure that learners understand what they need to do. Pay particular attention to the vocabulary used in the activity.

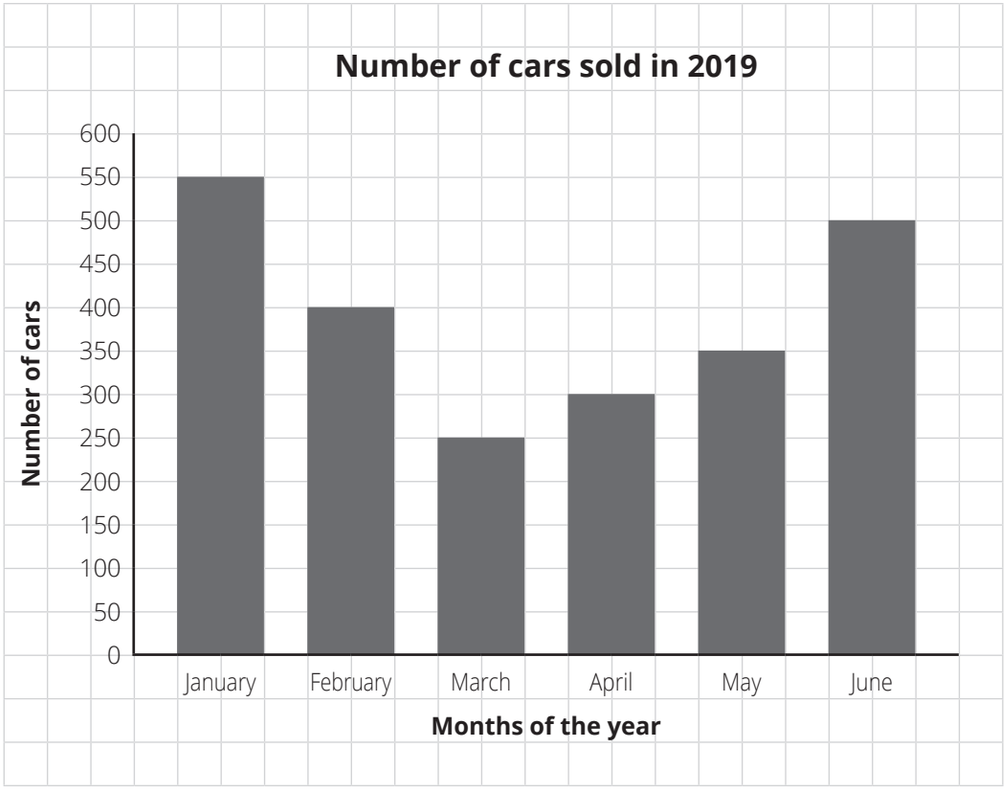
1. What is the interval on the vertical axis of the graph? (50)
2. Fill in the missing numbers on the vertical axis of the graph. (See graph)
3. Complete the bar graph by filling in the missing labels. (See graph)



5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain what learners need to do for homework.
- Make sure all the learners understand what to do.
- Answers in brackets.

Use the bar graph as you answer the questions.



1. How many cars were sold in March? (250)
2. How many more cars were sold in June than in April? (500 – 300 = 200 cars)
3. How many cars were sold in January and February? (550 + 400 = 900 cars)

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 how work out what intervals to use when drawing bar graphs.**

Lesson 28: Intervals on a bar graph (2)

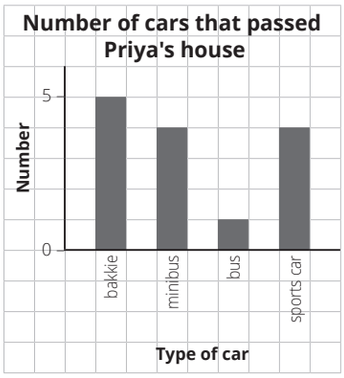
Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum. CAPS topics: 5.2 Representing data Lesson Objective: Learners will be able to work out intervals when drawing bar graphs. Lesson Vocabulary: popular, vehicle, interval, trial and error, vertical axis Teacher Resources: A3 poster: Learners' preferred weather Start collecting pictographs from old newspapers, magazines and advertisements
Date: Week Day

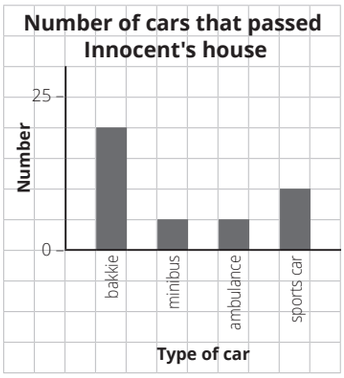
1 MENTAL MATHS (5 MINUTES)

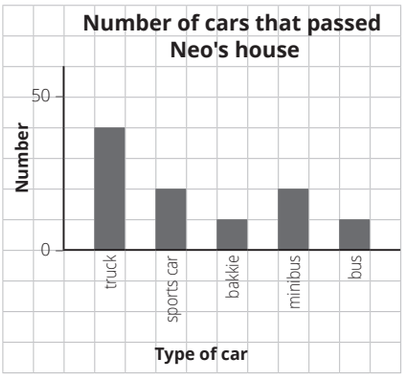
		Answers
1	Start at 200 and count up in 50s until you reach 550.	200; 250; 300; 350; 400; 450; 500; 550
2	Start at 400 and count down in 50s until you reach 0	400; 350; 300; 250; 200; 150; 100; 50; 0
3	Start at 350 and count up in 50s until you reach 700.	350; 400; 450; 500; 550; 600; 650; 700.
4	Start at 750 and count down in 50s until you reach 400	750; 700; 650; 600; 550; 500; 450; 400
5	Start at 650 and count up in 50s until you reach 1 000.	650; 700; 750; 800; 850; 900; 950; 1 000
6	Start at 950 and count down in 50s until you reach 600	950; 900; 850; 800; 750; 700; 650; 600

2 LINK TO PREVIOUS LESSON (5 MINUTES)

Refer learners to the bar graph: 'Number of cars that passed the house' in the LAB.







- Ask: **What is the interval on Priya's graph?** (1 square represents 1 unit)
  Ask: **What is the interval on Innocent's graph?** (1 square represents 5 units)
  Ask: **What is the interval on Neo's graph?** (1 square represents 10 units)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 27 are provided in Lesson 27.
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 continue to work with bar graphs. Learners determine appropriate intervals for different data sets.

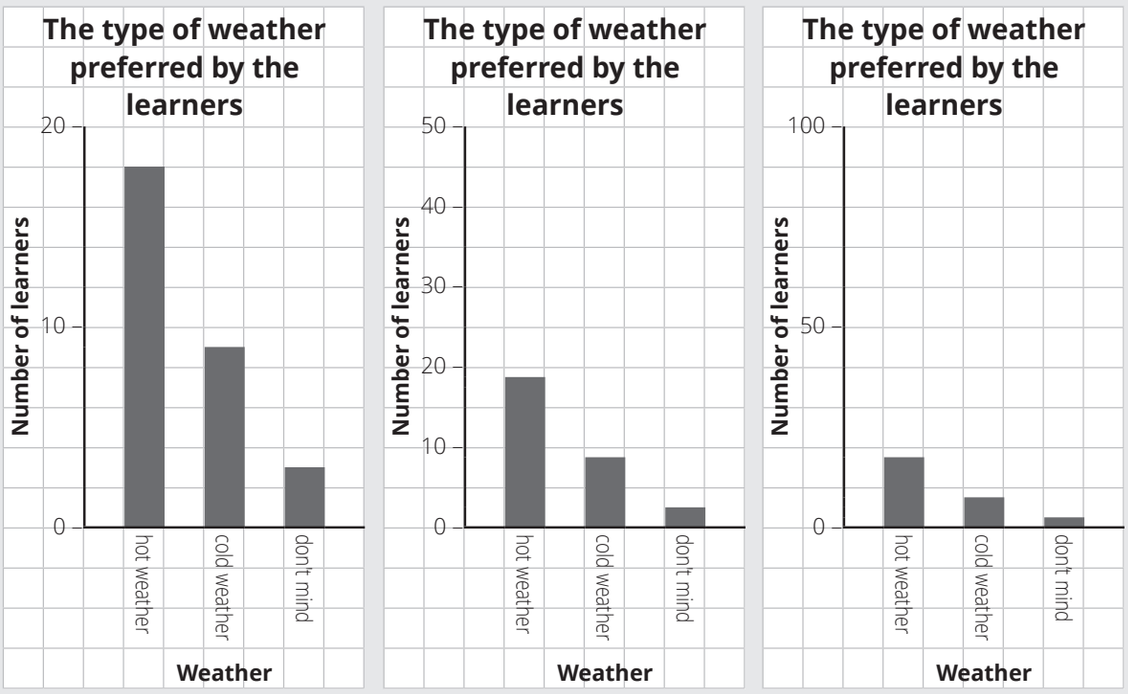
Say: **Today we are practising how to work out intervals for bar graphs.**

Activity 1: Whole class activity

- Stick the poster "Learners' preferred weather" on the board.
  The learners turn to the same graphs in their LAB.

- Say: **The learners were asked if they preferred hot weather or cold weather or didn't mind what the weather was.**
  Say: **Three learners drew a bar graph to show the information.**

Learners' preferred weather



- Say: **Compare the three graphs and ask the class what is the same about the three graphs.**
  (They have the same title and the labels on the axes are the same.)
  Say: **And what is different between the three graphs?**
  (The numbers on the vertical axis are different; the height of the bars are different.)

- Ask: **How many learners in the first graph preferred hot weather?** (18)
  Ask: **How many learners in the second graph preferred hot weather?**
  (Between 15 and 20 but closer to 20)
  Ask: **How many learners in the third graph preferred hot weather?**
  (Between 10 and 20 but closer to 20)
  Ask: **Which graph tells us exactly how many learners preferred hot weather?**
  (The first one.)
  Say: **All three graphs show the same things, but they look different.**

Activity 2: Learners work in pairs

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

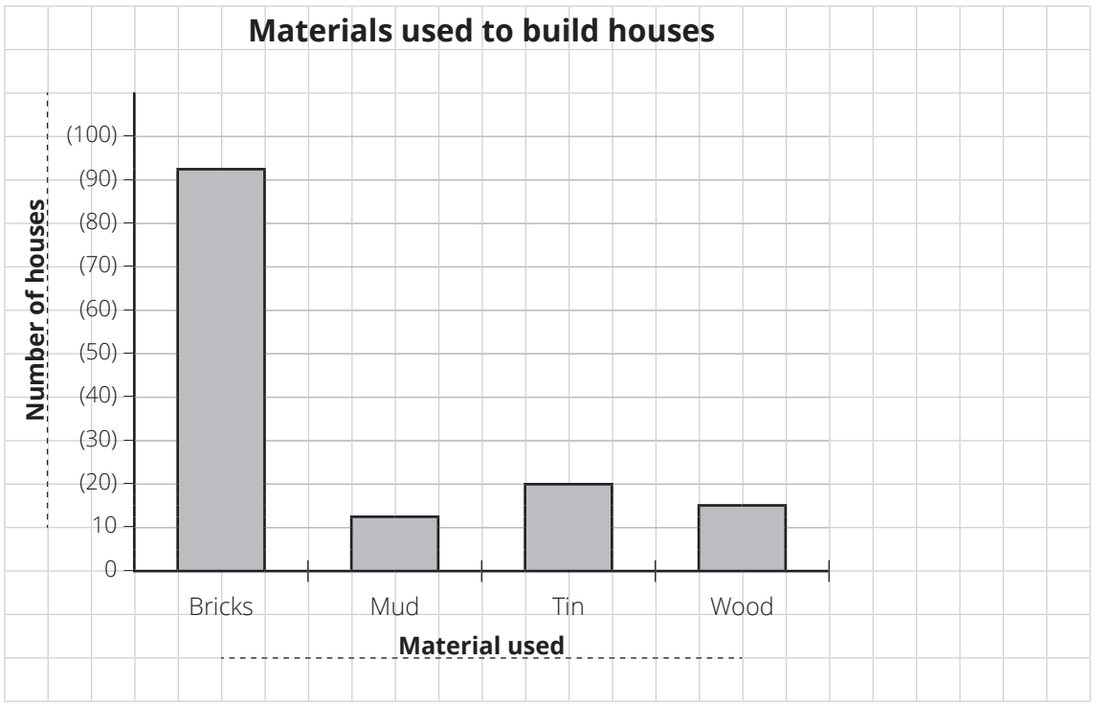
- Walk around the classroom to support learners as needed.
- Make sure that learners understand what they need to do. Pay particular attention to the vocabulary used in the activity.
- Correct Activity 2 with learners so that they can receive immediate feedback.

- Answers in brackets, in the table and on the graph.

The tallies show the types material used to build houses in an area.

Material	Tallies	Frequency
Bricks	𝍸 ||	(92)
Mud	𝍸 𝍸 ||||	(14)
Tin	𝍸 𝍸 𝍸 𝍸	(20)
Wood	𝍸 𝍸 𝍸 |	(16)

1. Fill in the frequency for each material on the Frequency Table.
2. On the following set of axes:
   a. Fill in headings on the two axes
   b. Fill in the values on the vertical axis.
   c. Draw the bars.



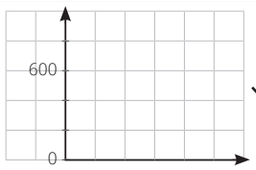
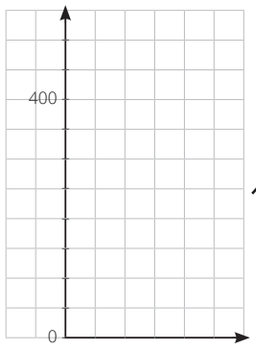
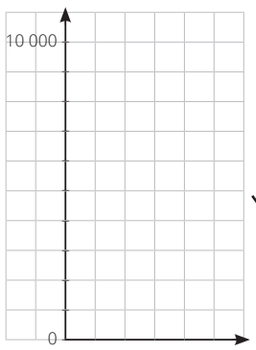
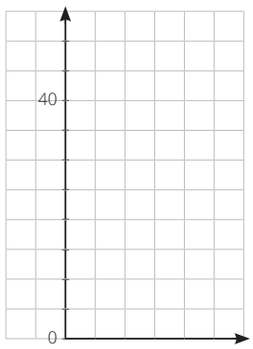
5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain what learners need to do for homework.
- Make sure all the learners understand what to do.
- Answers in brackets.

Lerato needs to draw four graphs. She gets the axes shown below ready for the graphs.

Find the interval she used for each graph.

Draw a line to match the axes in A with the interval in B.

A Axes	A Axes
	50
	200
	5
	1 000

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 practised graphs finding the interval and drawing and interpreting bar graphs.**

Lesson 29: Pictographs (1)

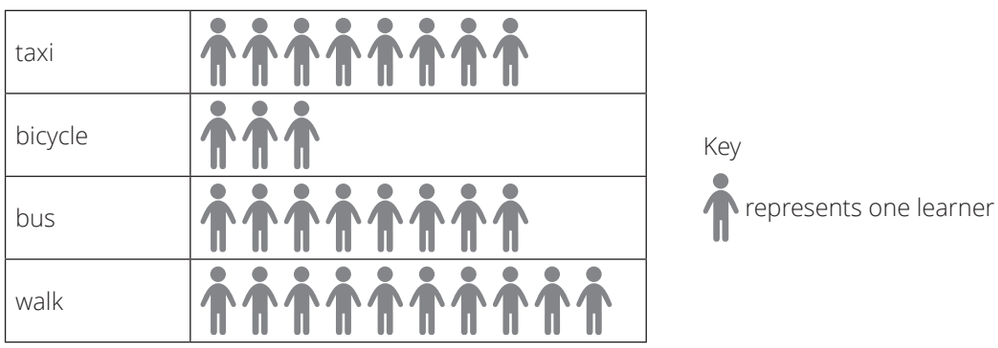
Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 5.1 Collecting and organising data 5.2 Representing data
Lesson Objective: Learners will be able to read many-to-one pictographs.
Lesson Vocabulary: pictograph, key, represents, symbol, most, least, range, vertical, horizontal, survey
Teacher and Learner Resources: Pictographs from old magazines, newspapers, advertisements and the internet (if available).
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

		Answers
1	Start at 500 and count up in 100s until you reach 1 100	500; 600; 700; 800; 900; 1 000; 1 100
2	Start at 1 000 and count down in 100s until you reach 400	1 000; 900; 800; 700; 600; 500; 400
3	Start at 7 500 and count up in 100s until you reach 8 000.	7 500; 7 600; 7 700; 7 800; 7 900; 8 000
4	Start at 5 700 and count down in 100s until you reach 5 200	5 700; 5 600; 5 500; 5 400; 5 300; 5 200
5	Start at 8 600 and count up in 100s until you reach 9 100.	8 600; 8 700; 8 800; 8 900; 9 000; 9 100
6	Start at 3 300 and count down in 100s until you reach 2 800	3 300; 3 200; 3 100; 3 000; 2 900; 2 800

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Revise Grade 3 work on pictographs with one-to-one correspondence.
  Refer learners to the pictograph: How learners get to school 'in the Lab.
- Say: **The pictograph shows how learners get to school.**



- Ask: **How many learners does one symbol represent?** (One / 1)
  Ask: **Where did you find this information?** (In the key – show learners the key)
  Ask: **How many learners come to school by bicycle?** (Three / 3)
  Ask: **How many more learners come to school by bus than by bicycle?** (8 – 3 = 5, 5 learners)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 28 are provided in Lesson 28.
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 the next four lessons, learners read, analyse and interpret pictographs. Pictographs have the advantage of being easy to read. One disadvantage of pictographs, particularly many-to-one pictographs, is that they are not always precise. Another disadvantage of a pictograph is that it takes time to draw all the pictures. For this reason, encourage learners to keep the pictures simple. The pictures should always be the same size and should be evenly spaced. The key and the heading are important parts of a pictograph.

Where possible collect pictographs from newspapers and magazines. Pictographs and other graphical representations offer opportunities for integration with other Learning Areas such as Social Sciences and Natural Sciences and Technology.

Say: **Today we are learning to read a pictograph.**

Activity 1: Whole class activity and learners work on their own

- Refer learners to the pictograph: How learners get to school in the LAB.
- Learners should write answers in their LAB.

How learners get to school

- Say: **In a pictograph, a picture or symbol is used to represent a number of items.**

- Ask: **How many learners use the bus to get to school?**
  (The learners could answer 3 or 15 learners)
  Note: It is good to check how many learners wrote 3 learners and 15 learners.
  Don't say that 3 is wrong, rather ask: How did you get that number 3? (They may say because I saw 3 symbols for bicycles.)
  Say: **Yes, we have 3 symbols for bicycles.**
  Ask, as you point to the key: **What the key for this graph tell us?**
  (The key tells us that one symbol represents 5 learners)
  Confirm: **In this pictograph, one symbol represents five learners.**
  Ask again: **If so, how many learners use the bus to get to school?**
  (3 × 5 = 15, 15 learners)

- Then ask: **How many learners walk to school?** (There are 10 symbols, so 10 × 5 = 50, 50 learners)
  Ask: **How many more learners use a taxi than a school bus to get to school?**
  (Both have 8 symbols. There is no difference between the number of learners who use the taxi and the number of learners who use the bus. None/ zero)

- Say: **Usually the key is written using the equal sign as = 5 days, = 100 cows, = 1 000 ships, = 10 000 people**

Activity 2: Learners work in pairs

- Use pictographs that either you or the learners have collected.
- Learners should paste their pictographs in their classwork books.
- Give learners an opportunity to show the class their pictographs. Ask questions based on the pictographs.
- If none of you have managed to find pictographs, carry on with the rest of Activity 2.

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

- Walk around the classroom to support learners as needed.
- Correct Activity 2 with learners so that they can receive immediate feedback.
- Answers in brackets.

1. Read the information in the pictograph. Answer the questions.

Number of slices of bread eaten today.	
Karabo	
Leah	
Adri	
Anna	
KEY:  = 2 slices of bread	

a. What is the key? (1 picture of a slice of bread = 2 slices of bread)
b. How many slices of bread did Karabo eat? (7 × 2 = 14, 14 slices)
c. How many slices of bread did Adri eat? (Two; 2 slices)
d. How many slices of bread did Anna eat? (There are 2 and a half symbols: 2 × 2 = 4 and 1 more slice, so 5 slices)
e. Who ate the most slices of bread? (Karabo)
f. Who ate the least slices of bread? (Adri)
g. How many more slices of bread did Anna eat than Adri? (5 – 2 = 3 slices)
h. How many slices of bread did the children eat altogether?
(There are 7 + 6 + 1 + 2 = 16 symbols. 16 × 2 = 32, and half a symbol represents 1 slice, so the total is 32 + 1 = 33, so 33 slices)

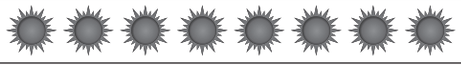
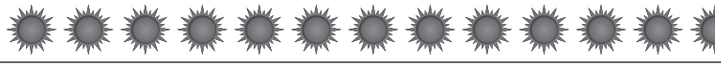
2. The pictograph shows the number of books read by five different learners in one term. Look at the pictograph. Answer the questions.

Number of books read by the learners in one term				
				
Busi	**Sam**	**Neo**	**Mpho**	**Vuma**
KEY:  = 5 books				

a. What is the key? (One book represents 5 books)
b. How many learners were surveyed? (Five / 5)
c. How many books did Neo read? (3 × 5 = 15 books)
d. How many more books did Busi read than Sam? (6 – 1 = 5 and 5 × 5 = 25 book. So Busi read 25 more books.)
e. How many books were read altogether by these learners? (16 × 5 = 80 books)

Activity 3: Learners work with a partner

1. All pictographs use symbols to show data.
This pictograph shows the number of sunny days each month over December, January and February.
Look at the pictograph. Answer the questions.

Number of sunny days during December, January and February	
December	
January	
February	
KEY:  = 2 days	

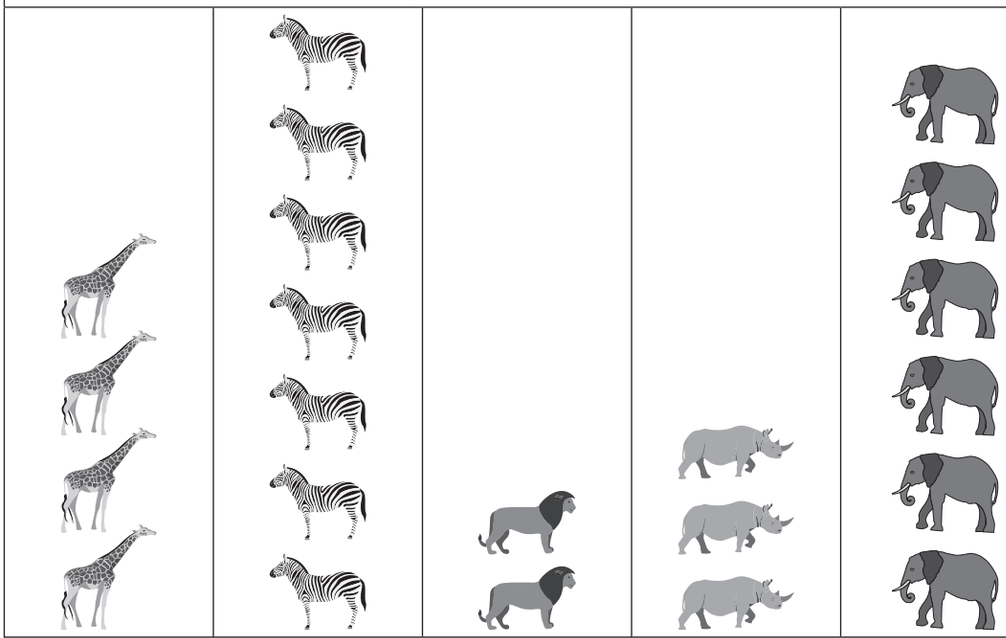
a. What is the key? (One sun represents 2 sunny days)
b. How many sunny days were there in December? (11 × 2 = 22 sunny days)
c. How many sunny days were there in January? (8 × 2 = 16 sunny days)
d. How many sunny days were there in February?
(There are 12 and a half suns. 12 × 2 = 24 sunny days; half a sun = 1 day. So, in February there are 24 + 1 = 25 sunny days.)
e. How many fewer sunny days were there in January than in February?
(25 – 16 = 9 days. Or 12 and a half suns – 8 suns = 4 and a half suns;
4 × 2 = 8 suns; half a sun = 1 day. So, there are 8 + 1 = 9 fewer sunny days.)

5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain what learners need to do for homework.
- Make sure all the learners understand what to do.
- Answers in brackets.

Look at the pictograph. Answer the questions.

Number of animals seen on a trip to the Game Park



Giraffes	Zebras	Lions	Rhinos	Elephants

KEY: One symbol = 2 animals

1 What is the key? (Each symbol represents 2 animals)
2 How many different types of animals did the children see? (Five / 5)
3 Which animal did they see most of? (Zebras)
4 How many zebras did they see? (7 × 2 = 14, so they saw 14 zebras)
5 Arrange the animals in order from the animals they saw most of, to the animal they saw least of. (Zebras, Elephants, Giraffes, Rhinos, Lions)

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 learned to read pictographs. We know that we must always look at the key carefully.**

Lesson 30: Pictographs (2)

Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.

CAPS topics: 5.2 Representing data
5.3 Analysing, interpreting and reporting data

Lesson Objective: Learners will be able to organise, represent, analyse, interpret and report data represented in a many-to-one pictograph.

Lesson Vocabulary: pictograph, symbol, data

Resources: none

Start collecting different types of graphs from old newspapers, magazines and advertisements.

Date: Week Day

1 MENTAL MATHS (5 MINUTES)

		Answers
1	Start at 1 000 and count up in 200s until you reach 2 000	1 000; 1 200; 1 400; 1 600; 1 800; 2 000
2	Start at 9 000 and count down in 200s until you reach 8 000	9 000; 8 800; 8 600; 8 400; 8 200; 8 000
3	Start at 4 600 and count up in 200s until you reach 5 600	4 600; 4 800; 5 000; 5 200; 5 400; 5 600
4	Start at 5 400 and count down in 200s until you reach 4 400	5 400; 5 200; 5 000; 4 800; 4 600; 4 400
5	Start at 6 800 and count up in 200s until you reach 7 800	6 800; 7 000; 7 200; 7 400; 7 600; 7 800
6	Start at 1 600 and count down in 200s until you reach 400	1 600; 1 400; 1 200; 1 000; 800; 600; 400

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Revise what learners know about pictographs:
  Ask: **What is a pictograph?** (Graph that uses symbols/ pictures to represent data)
  Ask: **What is a symbol?** (Small pictures used to represent something)
  Ask: **Do symbols always only represent one item?** (No)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 29 are provided in Lesson 29.

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 find out how to represent data in a many-to-one pictograph.

Say: **Today we are learning to represent data in a pictograph.**

Activity 1: Whole class activity and learners work with their group

- Write the table on the board. The learners have it in their LAB.

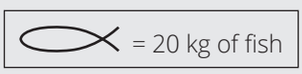
Mass of fish caught each day of the week			
Day	**Mass of fish caught**	**How many symbols?**	**Key:**
Day 1	89 kg		
Day 2	103 kg		
Day 3	215 kg		
Day 4	48 kg		
Day 5	156 kg		
Day 6	160 kg		

- Ask: **What is the smallest mass of the fish caught on a day?** (48 kg).
  Ask: **What is the largest mass of the fish caught on a day?** (215 kg)

- Say, as you draw the symbol on the board:
  Thabo is drawing a pictograph about the number of fish caught by a fisherman on different days of the week. He decided to use this symbol:  **for his key.**

- Ask: **What do you think does this symbol represents?** (A fish)
  Ask: **Do you think this is a good symbol to use?**
  (Yes, because simple / easy to draw; it is related to the topic of the pictograph)

- Say: **Thabo wrote the key like this:**

  Ask: **Do you think it is good to have one symbol representing 20 kg of fish?**
  (Encourage the learners to discuss whether one fish = 20 kg is good or not. They may say that they think the key should be 10 kg, 50 kg, or 100 kg. Whatever they suggest, encourage the learners to give a reason for their answer.)

- Ask: **How do we work out how many symbols we need for 89 kg when the key is 20 kg?**
  (We need to look at how many 20s there are in 89.)
  Say: **That is right. We use division.**
  Say: **Let's work out how many fish we need when the key is 20 kg.**
  (Work together with the learners. Let them suggest how to do it.
  End up with 89 ÷ 20 = 4 remainder 9)

- Say: **Let us work out how many symbols we would need for each different value for one fish.**
  Say: **Work with your group. Decide which key you are going to use. Then work out how many symbols you need. Write your answers in the table.**

- Let learners fill in the third column of their table as per their key. The table below shows all the answers for each key.

Mass of fish caught each day of the week					
Day	**Mass of fish caught**	**KEY: (20 kg fish) How many symbols?**	**KEY: (10 kg fish) How many symbols?**	**KEY: (50 kg fish) How many symbols?**	**KEY: (100 kg fish) How many symbols?**
Day 1	89 kg	89 ÷ 20 = 4 rem 9	89 ÷ 10 = 8 rem 9	89 ÷ 50 = 1 rem 39	89 ÷ 100 = Almost 1
Day 2	103 kg	103 ÷ 20 = 5 rem 3	103 ÷ 10 = 10 rem 3	103 ÷ 50 = 2 rem 3	103 ÷ 100 = 1 rem 3
Day 3	215 kg	215 ÷ 20 = 10 rem 15	215 ÷ 10 = 21 rem 5	215 ÷ 50 = 4 rem 15	215 ÷ 100 = 2 rem 15
Day 4	48 kg	48 ÷ 20 = 2 rem 8	48 ÷ 10 = 4 rem 8	48 ÷ 50 = almost 1	48 ÷ 100 = Almost half
Day 5	156 kg	156 ÷ 20 = 7 rem 16	156 ÷ 10 = 15 rem 6	156 ÷ 50 = 3 rem 6	156 ÷ 100 = 1 rem 56
Day 6	160 kg	160 ÷ 20 = 8	160 ÷ 10 = 16	160 ÷ 50 = 3 rem 10	160 ÷ 100 = 1 rem 60

- Note: learners may need your help how to deal with the case as '89 ÷ 100 = ?' and '48 ÷ 100 = ?'.

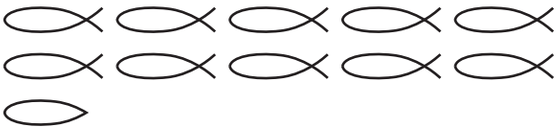
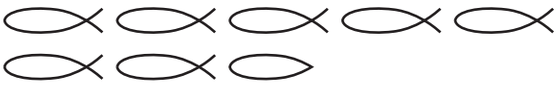
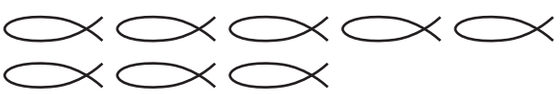
- Say: **Now we have to decide how many symbols to use.**
  Ask: **How do you think we should represent the remainders?**

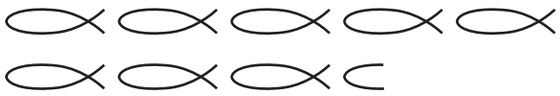
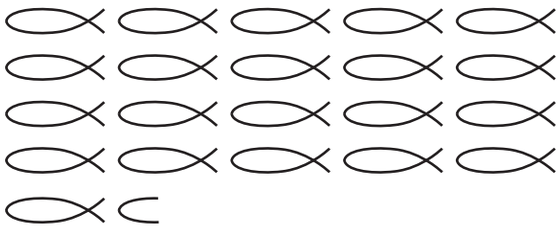
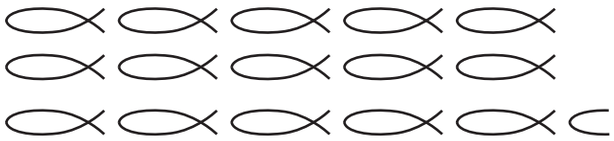
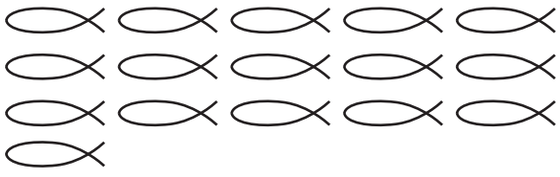
Do not tell the learners what to do. Allow them to discuss what to do and reach their own conclusions.
Points that could guide the discussion:

- *How do we represent half the number that is the key? (We could use one of these:  or )*
- *What do we do with remainders which are smaller than half the key? (We could use a small part of the fish like this: )*
- *What do we do with remainders which are bigger than half the key? (We could use most of the fish like this: )*

- Remember, the learners will have chosen one of the following as their key: 20 kg; 10 kg; 50 kg or 100 kg.

- Say: **Use your key and your calculations to draw a pictograph in your LAB.**
  (To assist you we provide pictographs here for 20 kg, 10 kg, 50 kg and 100 kg)

Mass of fish caught each day of the week			
Day	**Mass of fish caught**	**How many symbols?**	**Key:  = 20 kg fish**
Day 1	89 kg	89 ÷ 20 = 4 rem 9	
Day 2	103 kg	103 ÷ 20 = 5 rem 3	
Day 3	215 kg	215 ÷ 20 = 10 rem 15	
Day 4	48 kg	48 ÷ 20 = 2 rem 8	
Day 5	156 kg	156 ÷ 20 = 7 rem 16	
Day 6	160 kg	160 ÷ 20 = 8	

Mass of fish caught each day of the week			
Day	**Mass of fish caught**	**How many symbols?**	**Key: = 10 kg fish**
Day 1	89 kg	89 ÷ 10 = 8 rem 9	
Day 2	103 kg	103 ÷ 10 = 10 rem 3	
Day 3	215 kg	215 ÷ 10 = 21 rem 5	
Day 4	48 kg	48 ÷ 10 = 4 rem 8	
Day 5	156 kg	156 ÷ 10 = 15 rem 6	
Day 6	160 kg	160 ÷ 10 = 16	

Mass of fish caught each day of the week			
Day	**Mass of fish caught**	**How many symbols?**	**Key: = 50 kg fish**
Day 1	89 kg	89 ÷ 50 = 1 rem 39	
Day 2	103 kg	103 ÷ 50 = 2 rem 3	
Day 3	215 kg	215 ÷ 50 = 4 rem 15	
Day 4	48 kg	48 ÷ 50 = almost 1	
Day 5	156 kg	156 ÷ 50 = 3 rem 6	
Day 6	160 kg	160 ÷ 50 = 3 rem 10	

Mass of fish caught each day of the week			
Day	**Mass of fish caught**	**How many symbols?**	**Key: = 100 kg fish**
Day 1	89 kg	89 ÷ 100 = Almost 1	
Day 2	103 kg	103 ÷ 100 = 1 rem 3	
Day 3	215 kg	215 ÷ 100 = 2 rem 15	
Day 4	48 kg	48 ÷ 100 = Almost half	
Day 5	156 kg	156 ÷ 100 = 1 rem 56	
Day 6	160 kg	160 ÷ 100 = 1 rem 60	

- Let representatives of the groups present their pictographs on the board. It is OK if your learners didn't use a key of 50 or 100. In that case, you can show them these keys.

- Say: **A pictograph is not very accurate, but we can still use it to compare the mass of the fish.**

5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain what learners need to do for homework.
- Make sure all the learners understand what to do.
- Answers in brackets.

Match the heading of a pictograph with the most suitable symbol for that pictograph.

Pictograph heading	Symbol
Number of fish packed each day	
Number of taxis at the taxi rank	
Number of goals scored in the season	
Number of learners who ride on a bicycle to school	
Number of buses made each year	

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 learned to draw and interpret many-to-one pictographs.**

Lesson 31: Pictographs (3)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum. CAPS topics: 5.2 Representing data 5.3 Analysing, interpreting and reporting data Lesson Objective: Learners will be able to represent, analyse and interpret data on many-to-one pictographs. Lesson Vocabulary: pictograph, symbol, represent, frequency table, data Teacher Resources: None Continue collecting different types of graphs from old newspapers, magazines and advertisements.
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

		Answers
1	Start at 500 and count up in 500s until you reach 3 000.	500; 1 000; 1 500; 2 000; 2 500; 3 000
2	Start at 2 500 and count down in 500s until you reach 0.	2 500; 2 000; 1 500; 1 000; 500; 0
3	Start at 5 500 and count up in 500s until you reach 8 000.	5 500; 6 000; 6 500; 7 000; 7 500; 8 000
4	Start at 10 000 and count down in 500s until you reach 7 500.	10 000; 9 500; 9 000; 8 500; 8 000; 7 500
5	Start at 6 000 and count up in 500s until you reach 8 500.	6 000; 6 500; 7 000; 7 500; 8 000; 8 500
6	Start at 4 500 and count down in 500s until you reach 2 000.	4 500; 4 000; 3 500; 3 000; 2 500; 2 000

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Ask: **On a pictograph, where should you look to find out what the graph is about?** (Heading)
  Ask: **On a pictograph, where should you look to find the value of one symbol?** (Key)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 30 are provided in Lesson 30.

Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (25 MINUTES)

In this lesson, learners practise representing, analysing and interpreting data on many-to-one pictographs. The range of numbers in the data is higher in this lesson. This means that each symbol in the many-to-one pictograph will represent more than one item. Learners are also introduced to pictographs where a fraction of a symbol is used. Where fractions are used, the answers are not exact, but are described using terms like 'about half', 'a little bit more', a little bit less.

Say: **Today we practise drawing and interpreting pictographs.**

Activity 1: Whole class and learners work on their own

- Draw this symbol on the board: 
  Say: **This symbol represents 100 cars.**

- Ask: **What symbol do you think we could use if we want to represent 50 cars?**
  Say: **Draw the symbol in your classwork book.**
  (Answers will vary, but a symbol showing half a car to represent half a hundred is most suitable: )

- Say: **Draw the symbol we can use to represent 25 cars.**
  (Symbol showing quarter of a car to show quarter of a hundred: )

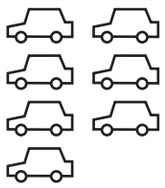
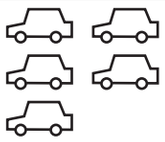
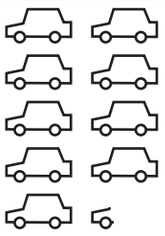
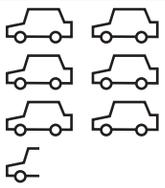
- Draw a whole car, half a car and a quarter car on the board: 
  Ask: **How many cars does this represent?** (100 + 50 + 25 = 175)

Activity 2: Learners work in pairs

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

- Walk around the classroom to support learners as needed.
- Correct Activity 2 with learners so that they can receive immediate feedback.
- Answers in brackets.

A pictograph was drawn to show the number of cars made every month.

The number of cars made every month				
Red	Blue	Green	White	Black
				
KEY:  **= 100 cars**				

1. In the key, how many cars does one symbol represent?
   (One symbol represents 100 cars)
2. How many different colour cars were made? (Five / 5 colours)
3. How many red cars were made? (7 × 100 = 700 cars)
4. How many blue cars were made? (5 × 100 = 500 cars)
5. How many green cars were made? (3× 100 = 300 cars)
6. How many white cars were made?
   (9 × 100 = 900 plus quarter of a car which is equal to 25. 900 + 25 = 925 cars)
7. How many black cars were made?
   (6 × 100 = 600 plus half a car which is 50. 600 + 50 = 650 cars.)
8. Which colour car did they make the second most of? (Red)
9. Which colour car do you want to have? Why? (Answers will differ here)

Activity 3: Learners work in pairs

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

- Walk around the classroom to support learners as needed.
- Correct Activity 2 with learners so that they can receive immediate feedback.
- Answers in brackets and on the pictograph.

The number of people who attended football matches from March to July were recorded in the following table:

Number of people who attended football matches from March to July					
Month	March	April	May	June	July
Frequency	10 000	25 000	45 000	37 000	53 000

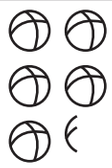
A pictograph was drawn of the data.

It was decided to use the symbol  to represent 10 000 people.

1. What does one symbol represent? ( = 10 000 people)

2. Work out how many balls we would have to draw for each month.
March: 10 000 people (1 ball)
April: 25 000 people (10 000 + 10 000 + 5 000, so we need 2 balls and half a ball)
May: 35 000 people (10 000 + 10 000 + 10 000 + 5 000, so we need 3 balls and half a ball)
June: 37 000 people (10 000 + 10 000 + 10 000 + 7 000, so we need 3 balls and more than half a ball)
July: 53 000 people (10 000 + 10 000 + 10 000 + 10 000 + 10 000 + 3 000, so we need 5 balls and less than half a ball)

3. Draw symbols to complete the pictograph

Number of people who attended football matches from March to July					
Month	March	April	May	June	July
Frequency					
KEY:  = 10 000 people					

4. During which month do you think the final was played? Give a reason for your answer.
(July. It is the last match. / It is the match that the highest number of people attended)

5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain what learners need to do for homework.
- Make sure all the learners understand what to do.
- Answers in brackets.

A key was used to draw a pictograph. **KEY:**  = 200 shirts		**ANSWERS**
1	Use the key to draw pictures to represent 500 shirts.	200 + 200 + 100 = 500  The symbol for 100 should be half of the symbol for 200.
2	Use the key to draw pictures to represent 760 shirts.	200 + 200 + 200 + 160 = 760  The symbol for 160 should be approximately ¾ of the symbol for 200.
3	Use the key to draw pictures to represent 410 shirts	200 + 200 + 10 = 410  The symbol for 10 should be a very small part of the symbol for 200.

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 learned to use symbols to represent data in a pictograph.**
We know that a pictograph does not always represent data accurately.

Lesson 32: Pictographs (4)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 5.2 Representing data 5.3 Analysing, interpreting and reporting data
Lesson Objective: Learners will be able to represent, analyse, interpret and report data in pictographs.
Lesson Vocabulary: pictograph, data, represent, frequency table, survey, decrease
Teacher and Learner Resources: Examples of pictograph from old newspapers, magazines, advertisements and the internet (where possible)
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

		Answers
1	Start at 1 000 and count up in 1 000s until you reach 6 000	1 000; 2 000; 3 000; 4 000; 5 000; 6 000
2	Start at 100 000 and count down in 1 000s until you reach 96 000	100 000; 99 000; 98 000; 97 000; 96 000
3	Start at 50 000 and count up in 1 000s until you reach 54 000.	50 000; 51 000; 52 000; 53 000; 54 000
4	Start at 46 000 and count down in 1 000s until you reach 42 000	46 000; 45 000; 44 000; 43 000; 42 000
5	Start at 27 000 and count up in 1 000s until you reach 31 000.	27 000; 28 000; 29 000; 30 000; 31 000
6	Start at 73 000 and count down in 1 000s until you reach 69 000	73 000; 72 000; 71 000; 70 000; 69 000

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Draw this key on the chalkboard:

KEY:	= 5 000 people	= 2 500 people	= 1 250 people

- Say, as you write the number on the board: **Use symbols to represent 15 000 people.** (15 000 = 5 000 + 5 000 + 5 000, so the symbols we should use are:)
- Say, as you write the number on the board: **Use symbols to represent 11 250 people.** (11 200 = 5 000 + 5 000 + 1 250, so the symbols we should use are:)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 31 are provided in Lesson 31.

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 practise representing, analysing and interpreting data in a pictograph. In Activity 1, learners use data given in a frequency table and then draw a pictograph. Learners also write a few sentences about the data in the pictographs. This lays the foundation for representing, analysis and reporting.

Say: **Today we are learning to represent, analyse, interpret and record data in a pictograph.**

Activity 1: Learners work in pairs

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

- Walk around the classroom to support learners as needed.
- Correct Activity 2 with learners so that they can receive immediate feedback.
- Answers in brackets and in the pictographs.

1. Read the information and then answer the questions.

> A survey was carried out to see what kind of lighting was used in households. 19 853 of the households use gas lighting, 10 770 households use candles and 16 208 households use electric lighting.

a. Complete the frequency table to represent the data.

Source of lighting in households	
Gas	(19 853)
Candles	(10 770)
Electricity	(16 208)
Total	(46 831)

b. Calculate how many symbols will be needed to draw a pictograph if  represents 5 000 households.

Gas = 5 000 + 5 000 + 5 000 + 4 853. We will need 3 symbols and nearly 1 whole symbol.
Candles = 5 000 + 5 000 + 770. We will need 2 symbols and a little bit of a symbol.
Electricity = 5 000 + 5 000 + 5 000 + 1 208. We will need 3 symbols and a quarter of a symbol.

c. Draw a pictograph to represent the data in the frequency table.

Heading: **Source of lighting in households**

Gas	
Candles	
Electricity	
KEY:  = 5 000 households	

d. Use the pictograph.
Write one sentence about the sources of lighting used in households.
(Answers vary: In this area, more people use gas than electricity and candles. The gas is the most popular source for lighting, because they don't have any problem when there is load shedding. Candles are the least popular.)

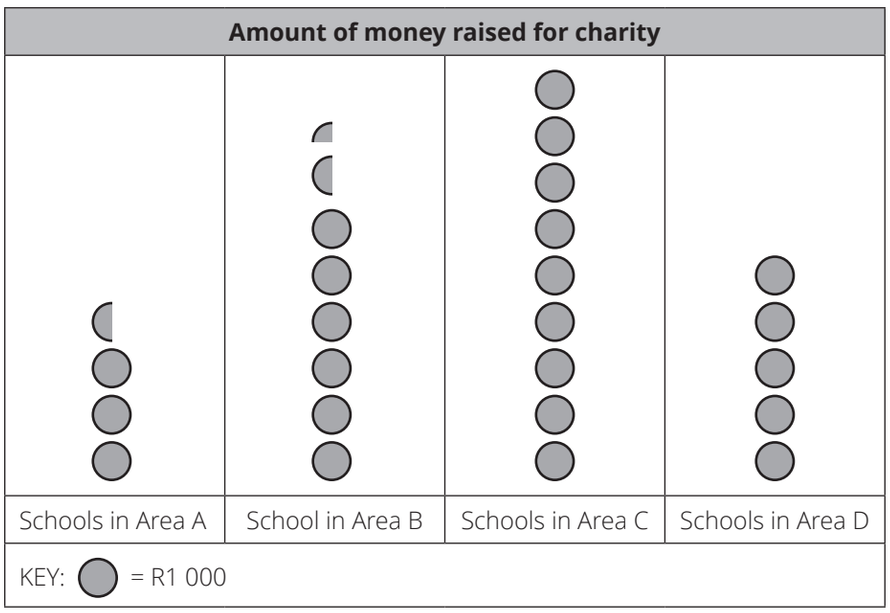
Activity 2: Learners work on their own

Say: **The pictograph in Activity 2 has been drawn vertically. We can draw pictographs vertically or horizontally.**

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

- Walk around the classroom to support learners as needed.
- Correct Activity 2 with learners so that they can receive immediate feedback.
- Answers in brackets.

Study the pictograph below.

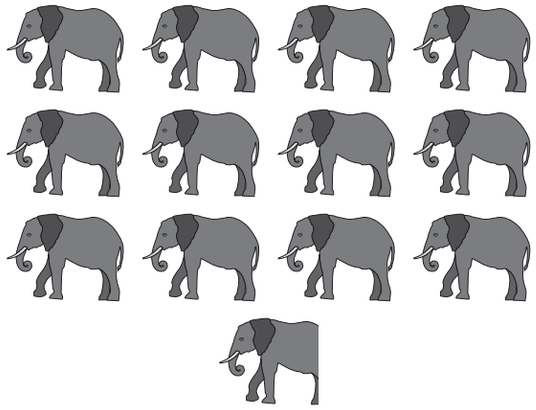
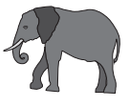


1. What is shown on this pictograph?
   (The amount of money raised by the schools in four different areas.)
2. What does the key tell us? (Each circle stands for R1 000)
3. Which area raised the most money for charity? (Area C)
4. Approximately how much money did the schools in each area raise?
   (Area A: R3 500, Area B: R6 750, Area C: R9 000, Area D: R5 000)

5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain what learners need to do for homework.
- Make sure all the learners understand what to do.
- Answers in brackets.

Look at the pictograph. It shows the number of elephants in Africa in 1979 and 2019.

Number of elephants in Africa in 1979	Number of elephants in Africa in 2019
	
KEY:  **= 100 000**	

Answer the questions.

1. Approximately how many elephants were there in Africa in 1979? (1 200 000 + 50 000 = 1 250 000)
2. Approximately how many elephants were there in Africa in 2019? (50 000)
3. Why do you think the number of elephants decreased between 1979 and 2019? (Some suggested answers: Because human people turned the land where they live into farms. Because many elephants were poached. Because of very little rains they don't have enough food.)

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 learned to represent and analyse data in pictographs.**

Lesson 33: Reading and interpreting graphs (1)

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.		
CAPS topics: 5.3 Analysing, interpreting and reporting data.		
Lesson Objective: Learners will be able to analyse, interpret and report data in pie charts and stacked bar graphs.		
Lesson Vocabulary: pie chart, symbol, stacked bar graph, represent		
Teacher Resources: Pie charts and stacked bar graphs that learners and teacher have collected,		
A4 poster: How Busi spends her money,		
Learner Resources: Pie charts and stacked bar graphs that learners have collected		
Date:	Week	Day

1 MENTAL MATHS (5 MINUTES)

		Answers
1	Start at 0 and count up in 2 000s until you reach 10 000.	0, 2 000; 4 000; 6 000; 8 000; 10 000
2	Start at 12 000 and count down in 2 000s until you reach 4 000	12 000; 10 000; 8 000; 6 000; 4 000
3	Start at 94 000 and count up in 2 000s until you reach 100 000.	94 000; 96 000; 98 000; 100 000
4	Start at 66 000 and count down in 2 000s until you reach 58 000	66 000; 64 000; 62 000; 60 000; 58 000
5	Start at 38 000 and count up in 2 000s until you reach 46 000	38 000; 40 000; 42 000; 44 000; 46 000
6	Start at 52 000 and count down in 2 000s until you reach 48 000	52 000; 54 000; 52 000; 50 000; 48 000

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Draw these symbols on the board:

	represents 1 000 fish
	represents 500 fish
	represents 250 fish

- Say: **How can we use the symbols to represent 1 750 fish.** ()
- Say: **How can we use the symbols to represent 2 800 fish.** ()

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 32 are provided in Lesson 32.

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 find out how to read and interpret data represented in pie charts and stacked bar graphs.

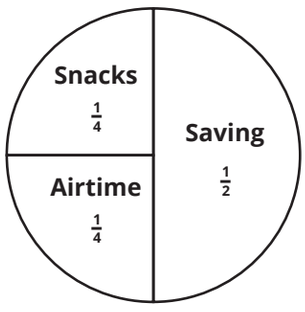
A **pie chart** shows information using a circle divided into parts. The circle represents the whole and the 'slices' of the circle indicate the size of the part that makes up the whole. The size of the part can be a fraction or a percentage of the circle. Not all data can be represented in a pie chart because the size of the whole must be known for data to be shown in a pie chart. CAPS requires that Grade 4 and 5 learners use pie charts where the size of the parts is shown as a fraction only.

In a bar chart the length of the bar represents the value of an item. A **stacked bar chart** also uses the length of the bar to represent amounts. However, in a stacked bar chart, each bar is divided into two or more parts to provide information on parts that make up the total value. For example, the total length of a bar could represent the number of learners that play football, but the bar could be divided to show what portion of the learners that play football are boys and what portion are girls.

Say: **Today we are learning to use pie charts and stacked bar graphs.**

Activity 1: Whole class activity

- Display the pie chart: 'How Busi spends her pocket money' on the board.



How Busi spends her pocket money

- Ask: **What does Busi use most of her pocket money for?** (Saving)
  Ask: **What fraction of her pocket money does Busi save?** ($\frac{1}{2}$ / half)
  Ask: **What else does Busi spend her pocket money on?** (Airtime and snacks)

Ask: **What fraction of her pocket money does Busi use to buy snacks?** ($\frac{1}{4}$ / quarter)
Ask: **Does Busi use more of her money for saving or for buying airtime?** (Saving)

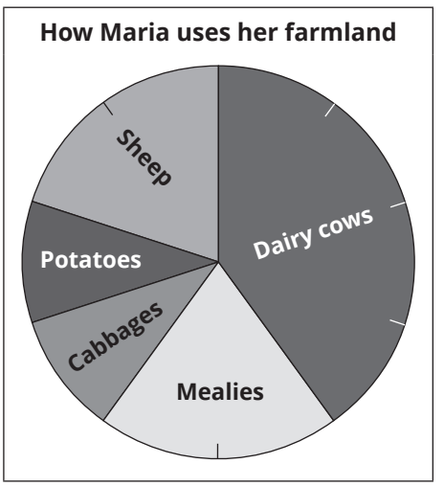
- Say: **When *data* is *represented* in a circle like this, it is called a *pie chart*.**
  Ask: **Who has a *pie chart* to show us?**
  Allow learners to show the class their pie charts. Discuss the pie charts and ask questions related to selected pie chart. Learners should paste their pie charts in their classwork books.

Activity 2: Learners work in pairs

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

- Walk around the classroom to support learners as needed.
- Correct Activity 2 with learners so that they can receive immediate feedback.
- Answers in brackets.

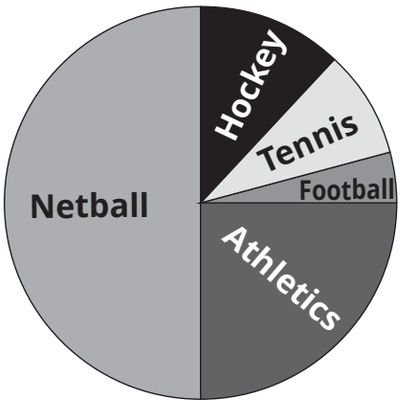
1. Look at the pie chart. Answer the questions.



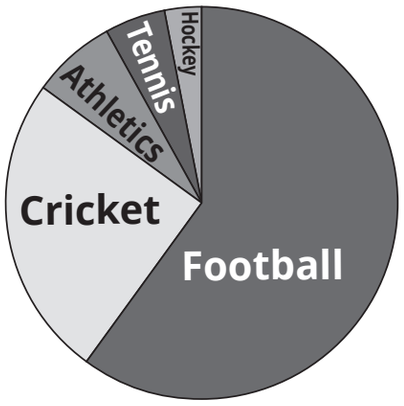
a. Which activity does Maria use most of her farmland for? (Dairy cows)
b. Which two activities does Maria use least of her farmland for? (Potatoes and cabbages)
c. Into how many equal parts is the circle divided? (10)
d. What fraction of her farmland does Maria use for growing potatoes?
($\frac{1}{10}$, because the circle is divided into 10 equal parts and potatoes occupies one part out of 10 equal parts.)
e. What fraction of her farmland does Maria use for growing mealies?
($\frac{2}{10}$; because the circle is divided into 10 equal parts and mealies occupies two parts out of 10 equal parts.)

2. Look at the pie charts. Answer the questions.

A. Favourite sports of girls



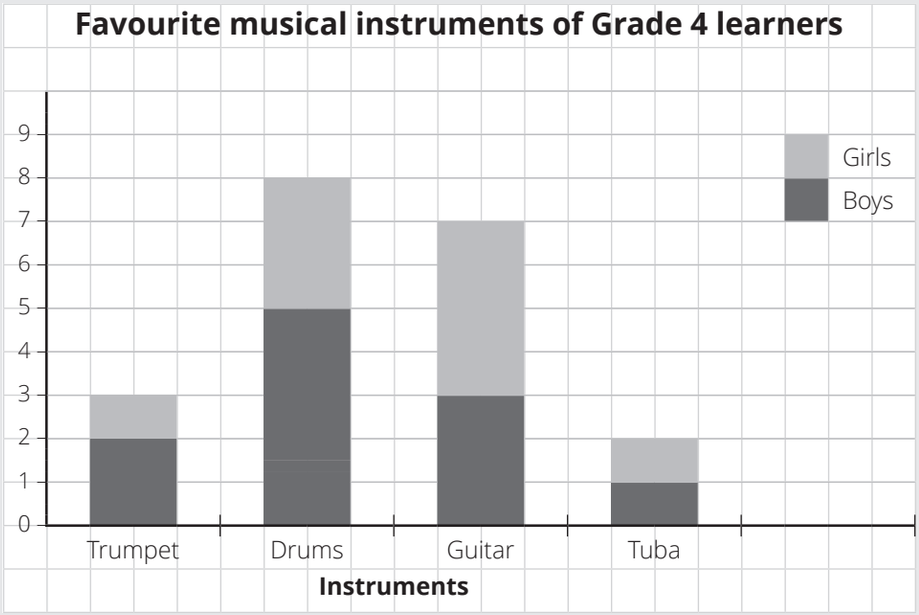
B. Favourite sports of boys



a. What is shown in Graph A? (Favourite sport of girls)
b. What sport is shown in Graph B? (Favourite sport of boys)
c. Which sport is most popular with the girls? (Netball)
d. Which sport is most popular with the boys? (Football)
e. Which sport do half of the girls like? (Netball)
f. Which sport do more than half the boys like? (Football)
g. Which sport is liked by the least boys? (Hockey)
h. What sport is liked by the least girls? (Football)

Activity 3 : Whole class activity, learners work in pairs and then learners work on their own

- Say: **Look at your bar graph showing Favourite musical Instruments of Grade 4 learners in your LAB.**
- Ask: **What type of graph is this?** (Bar graph)
- Say: **This is a bar graph but notice that it has two parts. It gives us more information than an ordinary bar graph. It is called a *stacked bar graph*.**



- Ask: **How many children said drums are their favourite instrument?** (Eight / 8)
  Ask: **How many boys said drums are their favourite instrument?** (Five / 5)
  Ask: **How many girls said drums are their favourite instrument?** (Three / 3)

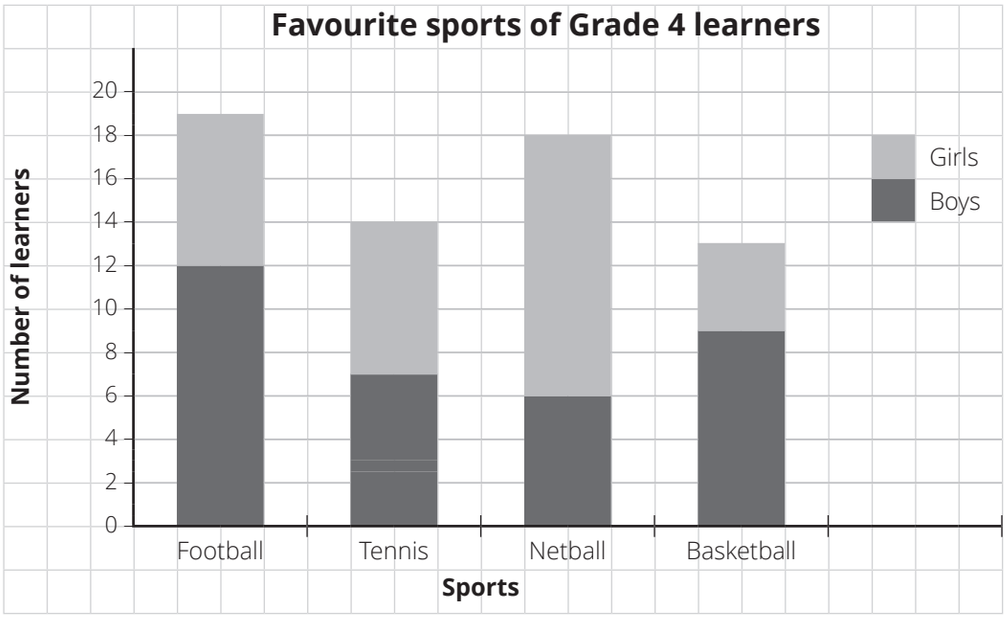
- Say: **Work with your partner. Write down three questions to ask the class about the graph.**
  (Give learners time to ask and answer the questions. Check that the questions and answers are correct.)

- Display the poster in the classroom.

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

- Walk around the classroom to support learners as needed.
- Correct Activity 3 with learners so that they can receive immediate feedback.
- Answers are given in brackets.

1. Look at the stacked bar graph. Answer the questions.

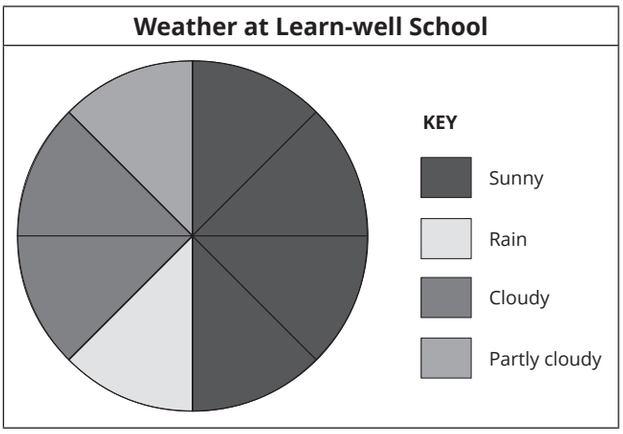


a. Which is the boys' favourite sport? (Football)
b. Which is the girls' favourite sport? (Netball)
c. Which is the favourite sport overall? (Football)
d. Which sport is the favourite of the same number of boys and girls? (Tennis)
e. How many children altogether list football as their favourite sport? (19 children)
f. How many boys and how many girls list football as their favourite sport? (12 boys and 7 girls)
g. Do more boys or girls list basketball as their favourite? (Boys)
h. Which sport is the favourite of the least number of girls? (Basketball)

5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain what learners need to do for homework.
- Make sure all the learners understand what to do.
- Answers in brackets.

Look at the pie chart. Answer the questions.



1. What weather condition was most common? (Sunny)
2. What fraction of the time was the weather sunny? (Half / $\frac{1}{2}$)
3. What fraction of the time was the weather cloudy? (Two eighths / $\frac{2}{8}$)

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 learned how to read pie charts and stacked bar charts.**

Lesson 34: Reading and interpreting graphs (2)

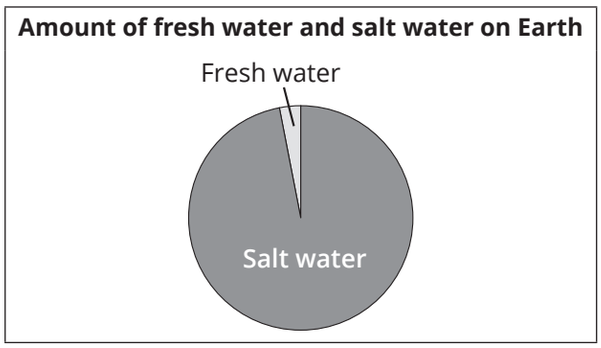
Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 5.3 Analysing, interpreting and reporting data
Lesson Objective: Learners will be able to read and interpret data presented in horizontal and vertical bar graphs.
Lesson Vocabulary: horizontal, vertical, bar graph
Teacher Resources: A4 pie chart of 'Amount of fresh water and salt water on Earth'
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

		Answers
1	Start at 0 and count up in 5 000s until you reach 25 000.	0, 5 000; 10 000; 15 000; 20 000; 25 000
2	Start at 100 000 and count down in 5 000s until you reach 50	100 000; 95 000; 90 000; 85 000; 80 000
3	Start at 55 000 and count up in 5 000s until you reach 75 000.	55 000; 60 000; 65 000; 70 000; 75 000
4	Start at 25 000 and count down in 5 000s until you reach 5 000	25 000; 20 000; 15 000; 10 000; 5 000
5	Start at 65 000 and count up in 5 000s until you reach 45 000.	65 000; 60 000; 55 000; 50 000; 45 000
6	Start at 40 000 and count down in 5 000s until you reach 20 000	40 000; 35 000; 30 000; 25 000; 20 000

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Stick this pie chart on the board.



- Ask: **Is there more fresh water or salt water on Earth?** (Salt water)

- Ask: **Explain why there is more salt water than fresh water on earth.** (For the teacher's information: approximately 70% of the earth's surface is covered by water. Of this water, approximately 97% is salt water and 3% is fresh water.)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 33 are provided in Lesson 33.

Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

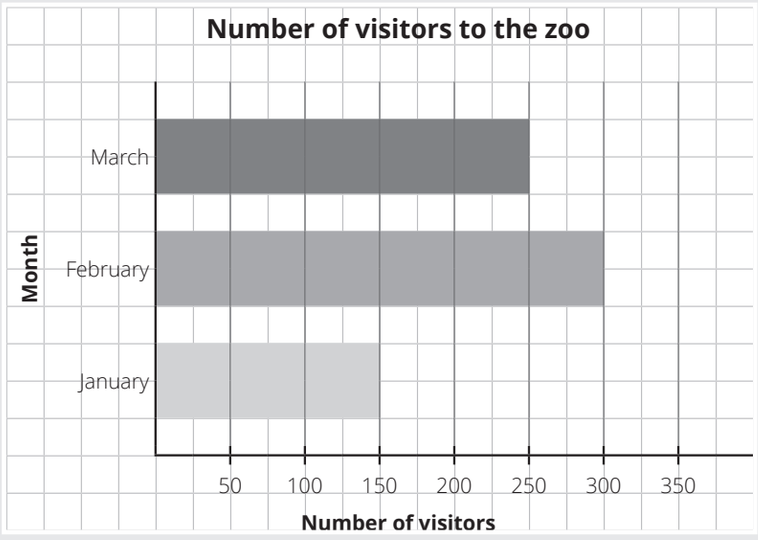
4. LESSON CONTENT – CONCEPT DEVELOPMENT (35 MINUTES)

In this lesson, learners find out how to read and interpret bar graphs. In the same way as pictographs can be vertical or horizontal, bar graphs can also be vertical or horizontal. Remember that in a bar graph, it is the length of the bar that indicates the amount or quantity.

Say: **Today we are learning to read and interpret bar graphs.**

Activity 1: Whole class activity and learners work with a partner

- Refer learner to the horizontal bar graph "Number of visitors to the zoo" in their LAB.



- Give learners time to work out how to read the graph. Don't rush to tell them how to read the graph.
- Say: **This is a *horizontal bar graph*. The bars go across from side to side. In a vertical bar graph the bars go up and down.**

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

Use your horizontal bar graph to answer these questions:

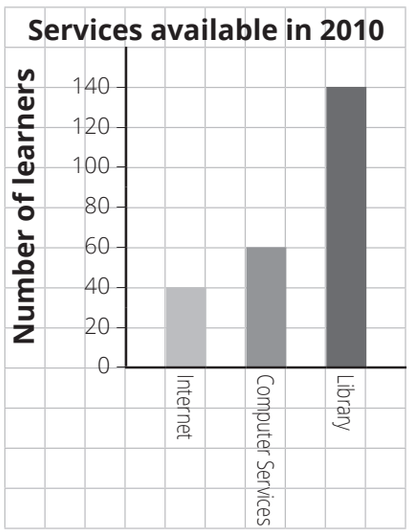
1. During which month did the most people visit the zoo? (February.)
2. How many people visited the zoo during this month? (About 300 people)
3. During which month did the least people visit the zoo? (January)
4. How many people visited the zoo during this month? (About 150 people)
5. Ask: How many more people visited the zoo in February than in March? (300 – 250 = 50)

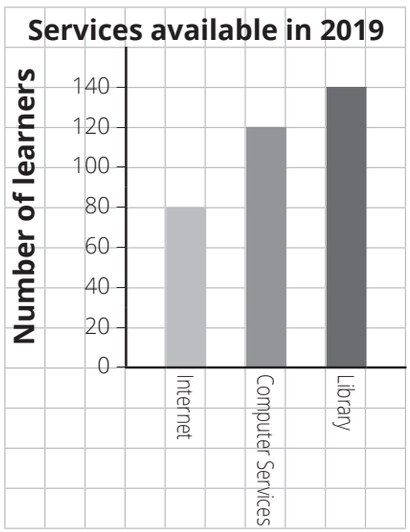
Activity 2: Learners work in pairs

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

- In this activity learners interpret two graphs in relation to each other. Some learners might need a lot of support with this. If necessary, work with a small group of learners while the other learners work in pairs. Once again, do not rush to tell learners the answers – let them work them out for themselves.
- Correct Activity 2 with learners so that they can receive immediate feedback.
- Answers in brackets.

These two bar charts show data collected in 2010 and 2019.





1. What data is shown on these two graphs?
   (How many learners had internet, computer services and a library available to them in 2010 and 2019)
2. How many learners had computer services available in 2010? (60)
3. How many learners had computer services available in 2019? (120)

4. How many learners had the internet available in 2010? (40)
5. How many learners had the internet available in 2019? (80)
6. Write a sentence about what the graphs tell you about the number of learners who had computers and the internet available in 2010 and 2019.
   (Possible answers: The number of learners who had computer and internet services available increased between 2010 and 2019; the number of learners who had computers and the internet available doubled between 2010 and 2019)
7. Which service was available for the same number of learners in 2010 and 2019? (Library)
8. What changes would you expect to see in the graphs if you collected the same data this year? Why?
   (Possible answers: The number of learners who had computers and the internet available would increase. There has been an increase since 2010 as more and more learners want to use these services)

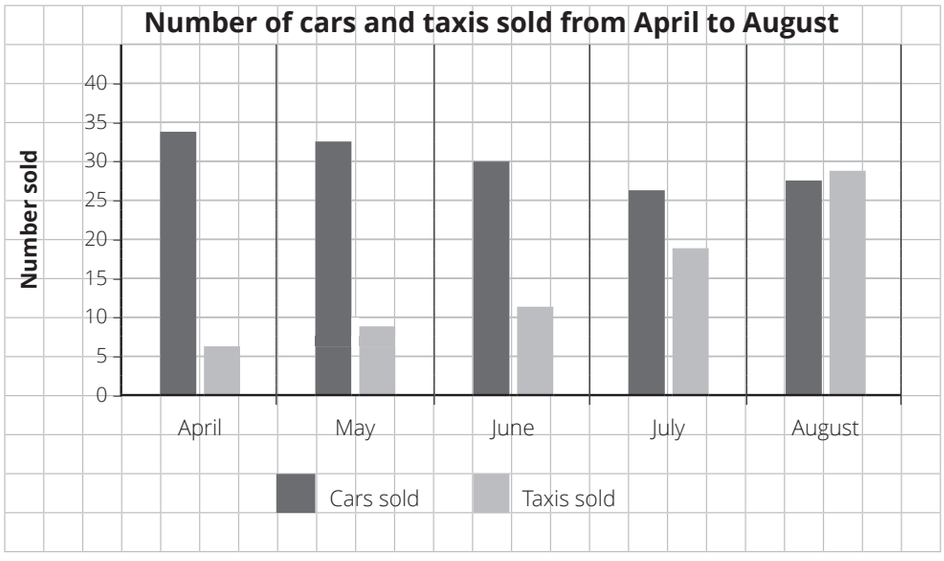
Activity 3: Learners work in pairs

Say: **In Activity 2, two graphs were drawn to show two different sets of data.**
Say: **In Activity 3, one a double bar graph is drawn to show two different sets of data.**

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

- Correct Activity 3 with learners so that they can receive immediate feedback.
- Answers in brackets.

This double bar graph shows the number of cars and taxis sold per month from April to August.



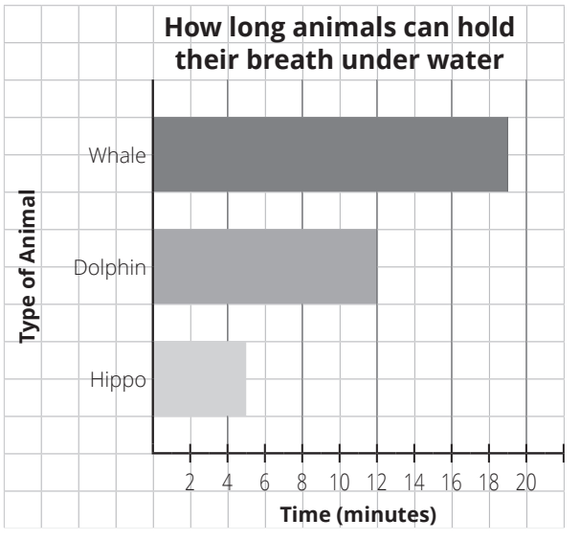
1. During which months were more cars sold than taxis? (April, May, June, July)
2. During which month were nearly the same number of cars and taxis sold? (August)
3. Approximately how many cars were sold during the first five months of the year? (34 + 32 + 30 + 26 + 28 = 150. So approximately 150 cars were sold.)
4. Approximately how many taxis were sold during these five months? (6 + 8 + 11 + 19 + 29 = 73. So approximately 73 taxis were sold.)
5. How many more cars than taxis were sold? (Approximately 150 – 73 = 67.)

Allow leeway here as the readings are approximate.

5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain what learners need to do for homework.
- Make sure all the learners understand what to do.
- Answers in brackets.

Use the graph showing how long animals can hold their breath under water. Answer the questions.



1. Which animal can hold its breath for longest? (Whale)
2. How much longer can a whale hold its breath under water than a hippo? (19 – 5 = 14 minutes)

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 learned to read and interpret bar graphs.**

Lesson 35: The data handling cycle (1)

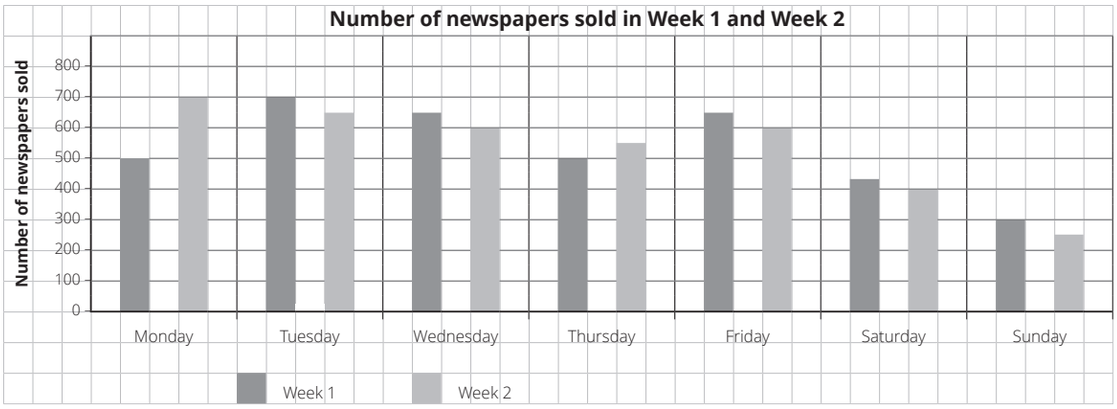
Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum. CAPS topics: 5.1 Collecting and organising data 5.2 Representing data 5.3 Analysing, interpreting and reporting data Lesson Objective: Learners will be able to answer a research question by working through the data handling cycle. Lesson Vocabulary: Data handling cycle, data, decrease, career, report Teacher Resources: A3 Poster of the Data Handling Cycle; Flashcards (The data handling cycle; ask a question; collect data; represent data by drawing a graph; interpret the data; report on your findings; 5 arrows)
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

		Answers
1	Start at 0 and count up in 10 000s until you reach 40 000.	0; 10 000; 20 000; 30 000; 40 000
2	Start at 60 000 and count down in 10 000s until you reach 30 000.	60 000; 50 000; 40 000; 30 000
3	Start at 660 000 and count up in 10 000s until you reach 690 000.	660 000; 670 000; 680 000; 690 000
4	Start at 440 000 and count down in 10 000s until you reach 410 000.	440 000; 430 000; 420 000; 410 000
5	Start at 280 000 and count up in 10 000s until you reach 310 000.	280 000; 290 000; 300 000; 310 000
6	Start at 920 000 and count down in 10 000s until you reach 890 000.	920 000; 910 000; 900 000; 890 000

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Refer learners to the following graph in their LAB.



- Ask: **How many more newspapers were sold on Monday of Week 2 than on Monday of Week 1?**
  (700 – 500 = 200)
- Ask: **On which day were almost the same number of newspapers sold in Week 1 and Week 2?** (Saturday)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 34 are provided in Lesson 34.

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 Lessons 35 and 36, learners find out what the data handling cycle is and how to complete the data handling cycle.

Say: **Today we are learning about the data handling cycle and how we can use it.**

Activity 1: Whole class activity /Learners work in groups / Learners work in pairs/ Learners work on their own

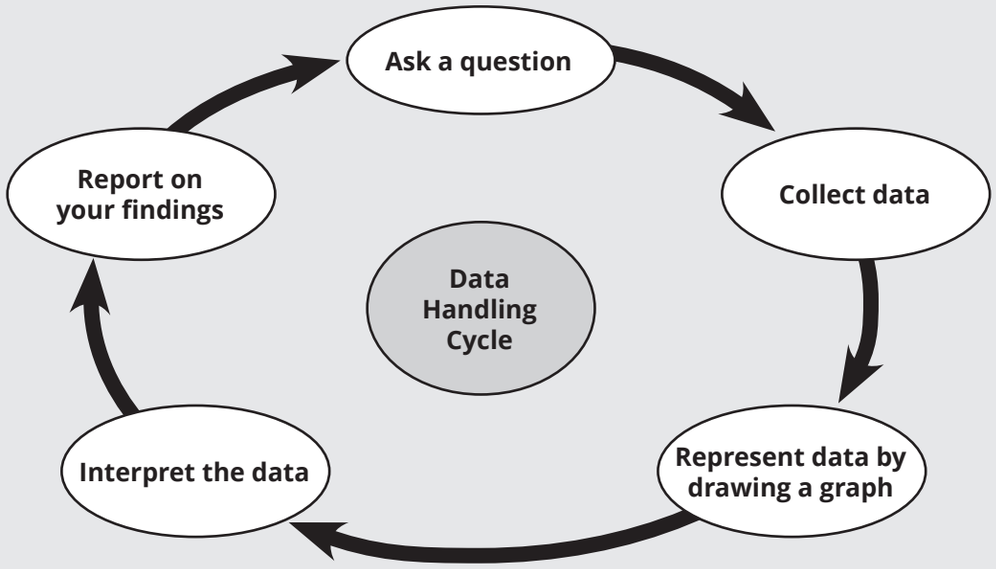
- You will need the data handling cycle flashcards and arrows from the Teacher's Resource Pack.
  Display the flashcards on the board, but not in any specific order.
  Point to each flashcard (but not in any specific order) and read it with the learners.

- Write the questions on the board before the lesson begins:
  What languages do learners in this class speak? How many learners speak each language?
  Read the questions with learners.

- Ask: **What steps do we have to go through to find the answers to the question?** (Possible answers from learners. Write them on the board:
  a. Ask all learners one by one about language they speak at home
  b. Collect the data and record it in a tally table
  c. Add up the tallies to work out the frequency.
  Note: at least by this step, you can answer the question.
  d. Develop the graph if necessary)

- Ask: **Who would like to come to the board and show us which step comes first?** (We ask a question)
  Ask: **Who would like to come to the board and show us which step comes second?** (We collect and organise data).
- Ask: **Who would like to come to the board and show us which step comes next?** (We represent data by drawing a graph).
- Ask: **Who would like to come to the board and show us which step should come next?** (We interpret the data)
- Ask: **Who would like to come to the board and show us which step should come next?** (We report on our findings)
- Ask: **What do you do when you interpret the data?** (We compare number of languages spoken, which language is most spoken; we think about the result like why SiSwati is spoken by the most people in this class)
- Ask: **What do you do when you report on your findings?** (We present the graph and explain the result and share our thoughts with the class.).

- Continue questioning until you have the whole data handling cycle displayed on the board like this:



Activity 2: Whole class and learners work on their own

- Say: **We are going to work through the data handling cycle together to find out what learners in our class would like to do when they have finished school.**

- Work through each step of the data handling cycle with the learners. Data will be collected as a whole class activity, but each learner must organise, analyse and report the data in his or her own classwork book.

- Answers to this activity will vary. Check steps as you go along so that learners do not carry errors from one step to the next.

- Say: **We are going to start the Data Handling Cycle by asking a question.**
  Write the question **"What do you want to be when you finish school?"** on the board.
  Read the question to the learners and make sure they understand what is being asked of them.

- Say: **We have to collect and organise data.**
  Say: **Tell me what you want to be when you finish school and I will write it on the board.**
  Write the careers on the board.

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

The learners in Grade 4 at the Red School asked the question "What do you want to be when you finish school?" and collected the following data:

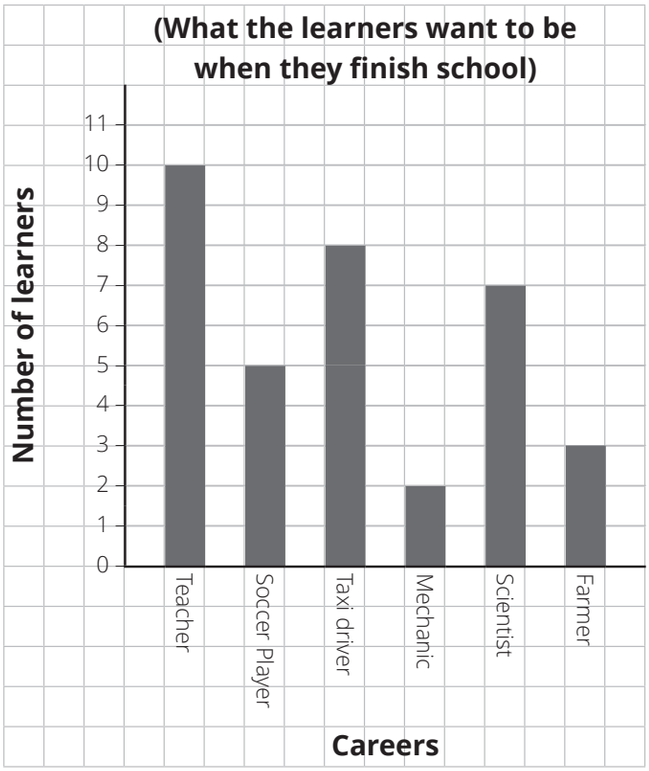
Career	Tallies	Frequency
1. Teacher	𝍸 𝍸	(10)
2. Soccer player	𝍸	(5)
3. Taxi driver	𝍸 |||	(8)
4. Mechanic	||	(2)
5. Scientist	𝍸 ||	(7)
6. Farmer	|||	(3)
Total		(35)

1 Complete the frequency column of the table.

2 A bar graph is drawn to represent the data.

a Draw bars on the grid below to represent the data.

b Write the title of the bar graph in the space at the top of the graph.



3 Interpret the data by answering the following questions:

a List the careers in order from most popular to least popular. (Teacher; Taxi driver; Scientist; Soccer player; Farmer; Mechanic)

b Which career was the most popular? (Teacher)

c Which career was least popular? (Mechanic)

d What is the difference between the most popular career and the least popular career?
(10 – 2 = 8 learners)

4 Report on your findings by recording:

a The total number of learners who took part in the survey.
(10 + 5 + 8 + 2 + 7 + 3 = 35 learners)

b Which career was most popular, and which one was least popular?
(Most popular was 'teacher' and least popular was 'mechanic')

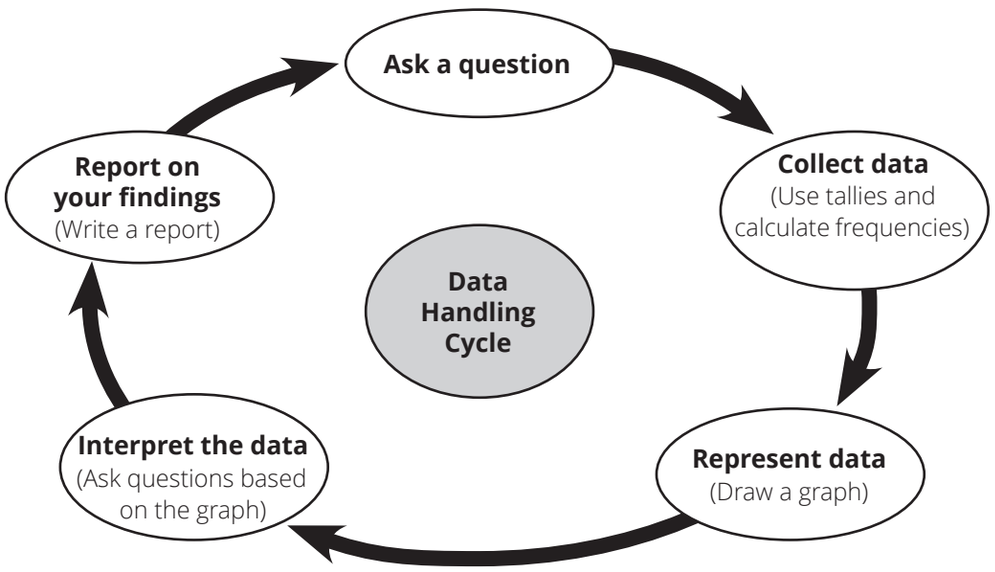
5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain what learners need to do for homework.
- Make sure all the learners understand what to do.
- Answers in brackets.

The diagram shows the data handling cycle which starts with "Asking a question".

Write the following in the correct place on the data handling cycle.

- Draw a graph
- Write a report
- Use tallies and calculate frequencies
- Ask questions based on the graph



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 learned about the four steps in the data handling cycle.**

Lesson 36: The data handling cycle (2)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 5.1 Collecting and organising data 5.2 Representing data 5.3 Analysing, interpreting and reporting data
Lesson Objective: Learners will be able to answer a research question by working through the data handling cycle.
Lesson Vocabulary: Data handling cycle, data, career, report
Teacher Resource: A3 poster of The Data Handling Cycle
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

		Answers
1	Start at 40 000 and count up in 10 000s until you reach 70 000	40 000; 50 000; 60 000; 70 000
2	Start at 180 000 and count down in 10 000s until you reach 150 000	180 000; 170 000; 160 000; 150 000
3	Start at 290 000 and count up in 10 000s until you reach 320 000	290 000; 300 000; 310 000; 320 000
4	Start at 660 000 and count down in 10 000s until you reach 630 000	660 000; 650 000; 640 000; 630 000
5	Start at 880 000 and count up in 10 000s until you reach 910 000.	880 000; 890 000; 900 000; 910 000
6	Start at 520 000 and count down in 10 000s until you reach 490 000	520 000; 510 000; 500 000; 490 000

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Use this example to revise Frequency tables with the learners.
  The learners have this table in their LAB.

- Say: **Andile and her friends made a frequency table to record how many boys and girls there were in their school.**
  Say: **Find the number of girls, the number of boys and the total number of learners in the school.**

	Tallies	Frequency
Number of girls	𝍸 𝍸	(215)
Number of boys	𝍸 𝍸	(225)
Total		(440)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 35 are provided in Lesson 35.

Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (35 MINUTES)

Say: **Today we are going to use the data handling cycle.**

Activity 1: Learners work in pairs

- Stick the A3 poster of the Data Handling Cycle on the board.

- Read through 1) and 2) with the learners and let them work on the rest of the Activity on their own.
- Walk around the classroom to support learners as they work though the rest of the Activity.
- Correct Activity 1 with the learners.
- Answers are given

- Read through the following with the learners:
  Busi wanted to know how many rhinos were poached in South Africa from 2014 to 2019.
  She started off by asking the question "How many rhinos were poached in South Africa from 2014 to 2019?".

- Say: **We are going to help Busi go through the Data Handling Cycle.**

- Say: **These are the steps that Busi went through:**

1 Ask a question:
Busi asked the question "How many rhinos were poached in South Africa from 2014 to 2019".

2 Collect data:
Busi researched the question and found information on the internet to help her. She organised the data on a frequency table like this:

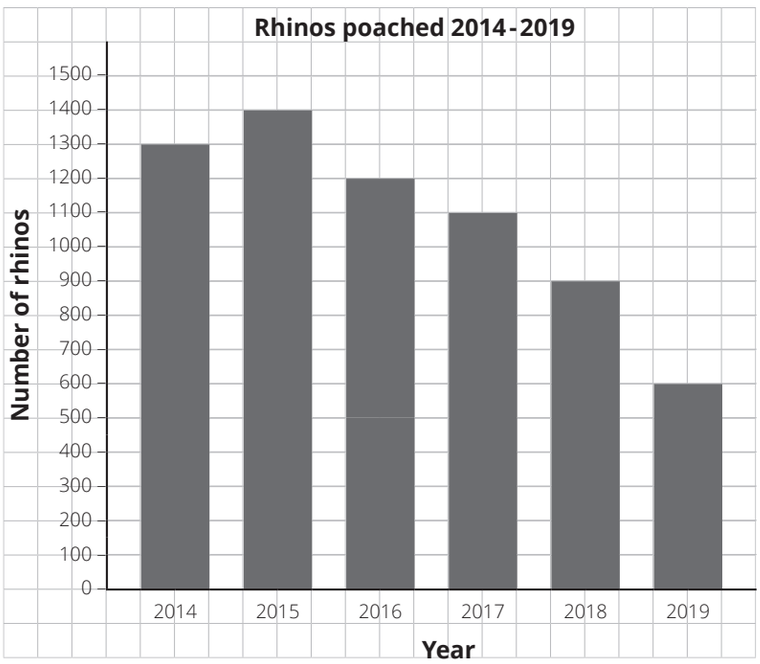
NUMBER OF RHINO'S POACHED	
Year	**Number of rhinos**
2014	1 300
2015	1 400
2016	1 200
2017	1 100
2018	900
2019	600

https://www.savetherhino.org/rhino-info/poaching-stats/

3 Represent data:
Busi decided to draw a bar graph to represent the data.

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

Draw the bars for each year on this bar graph:



4) Interpret data

a) How many rhinos were poached altogether from 2014 to 2019?

$$\begin{array}{r} 1\,300 \\ 1\,400 \\ 1\,200 \\ 1\,100 \\ 900 \\ +\ 600 \\ \hline 6\,500 \end{array}$$

(6 500 rhinos were poached altogether.)

b) In which year were the most rhinos poached? (2015)

c) In which year were the smallest number of rhinos poached? (2019)

d) What is the difference in the number of rhinos poached in these two years?

$$\begin{array}{r} {}^{0}\not{1}\,{}^{1}400 \\ -\ 600 \\ \hline 800 \end{array}$$

(There were 800 fewer rhinos poached in 2019 than in 2015)

e) If you look at the graph, how many rhinos do you think will be poached in 2020? (Hopefully, fewer rhinos will be poached in 2020 than in 2019.)

5) Report on findings

Write a short paragraph to tell the story about rhino poaching in South Africa between 2014 and 2019.

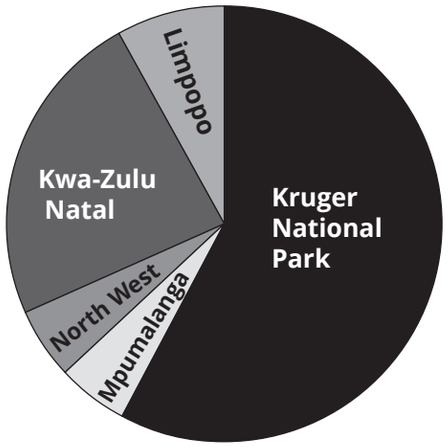
(Answers will vary here. Once the work has been completed, ask a few learners to read their paragraphs to the class.)

5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain what learners need to do for homework.
- Make sure all the learners understand what to do.
- Answers in brackets.

Busi also draw a pie chart to show where the most rhinos were poached in South Africa in 2019.

Where the most rhinos were poached in South Africa in 2019



https://www.savetherhino.org/rhino-info/poaching-stats/

Answer these questions about the pie chart:

1. Where were the most rhinos poached? (Kruger National Park)
2. What can you say about the number of rhinos poached in the North West and the number of rhinos poached in Mpumalanga? (Nearly the same number of rhinos was poached in these two provinces)
3. Arrange the areas in order from the area where most rhinos were poached to the area where the least rhinos were poached.
   (Kruger National Park; Kwa-Zulu Natal; Limpopo; North West; Mpumalanga (or Mpumalanga; North West))

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 about the data handling cycle. We know that:**

- **There are four steps in the data handling cycle.**
- **In Step 1 we collect and organise data to answer our question.**
- **In Step 2 we represent data in a graph.**
- **In Step 3 we analyse and interpret data by asking questions based on the graph.**
- **In Step 4 we report on the data.**

Lesson 37: Consolidation

Teacher's notes		
This lesson provides the opportunity for learners to revise and consolidate the work done in this unit (Data handling).		
CAPS topics: 5.1 Collecting and organising data 5.2 Representing data 5.3 Analysing, interpreting and reporting data		
Lesson Objective: Learners will revise the collection, organisation, representation, analysis, interpretation and reporting of data.		
Lesson Vocabulary: data, pictograph, horizontal bar graph, vertical bar graph, stacked bar graph, data handling cycle, frequency table, tally		
Resources: Textbooks (if available)		
Date:	Week	Day

1. NOTES FOR THE TEACHER RELATING TO THE WORK DONE IN THIS UNIT

The main topics in this unit were tally tables, frequency tables, pictographs, bar graphs and pie charts.

2. POSSIBLE MISCONCEPTIONS LINKED TO THE UNIT'S WORK

- Learners do not count the fifth (horizontal) tally mark.
- Learners do not understand that different representations use different scales.
- Learners do not see sections in a stacked bar graph as parts of a whole.

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

Use this time to purposefully address gaps in learners' knowledge of the data handling cycle and to identify and address learner errors.

4 CLASSWORK

Say: **Today we are going over what we learned. We will practise working with frequency tables, pictographs, bar graphs and pie charts.**

Use this time for learners to complete classwork or homework activities as necessary.

- Find additional activities in textbooks that you have.
- Learners could complete the Consolidation Activity in the LAB.

Additional activities for consolidation

Refer to the table. Select additional activities from the textbook/s you have.

Use the answers given in the Teacher's Guide to mark the work and provide feedback to learners.

	Fabulous	Oxford Headstart	Oxford Successful	Platinum	Premier	Sasol Inzalo	Solutions for All	Study & Master	Viva
LB	63-73 177-180	64-71 215-223	53-59 170-178	35-41 128-135	34-40 146-149	86-95 258-261	49-63 201-206	67-82 215-222	36-44 140-146
TG	41-46 141-144	88-93 253-260	73-78 149-153	27-34 101-105	16-18 74-76	92-102 294-299	49-56 162-164	95-105 288-293	28-29 74-75

Consolidation Activity

- Say: **Complete the Consolidation Activity in your LAB.**
- Read through the questions with learners. Make sure that learners understand what they need to do.
- Correct the Consolidation Activity with learners so that they can receive immediate feedback.
- Answers in brackets and on the graphs.

1 Look at the frequency table.

The number of learners who take part in after school activities	
Activity	**Frequency**
Football	38
Netball	34
Athletics	26
Tennis	14
Choir	39
Extra homework	42
Total	(193)

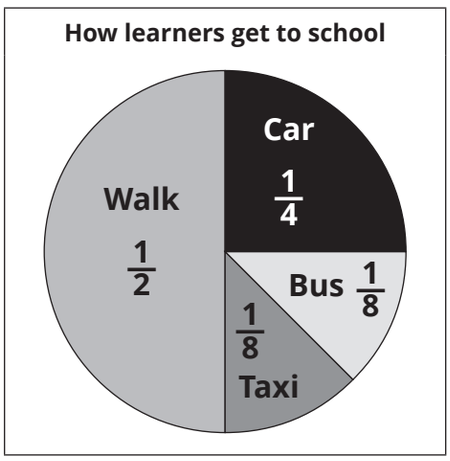
a What is the total number of learners who took part in after school activities? (193)

b Draw a pictograph to show the different activities and the number of learners that do each one.

Use the key  = 4 learners

The number of learners who take part in after school activities		
Activity		**Frequency**
Football		38
Netball		34
Athletics		26
Tennis		14
Choir		39
Extra homework		42
Key = **4 learners**		

2 Look at the pie chart. Answer the questions.

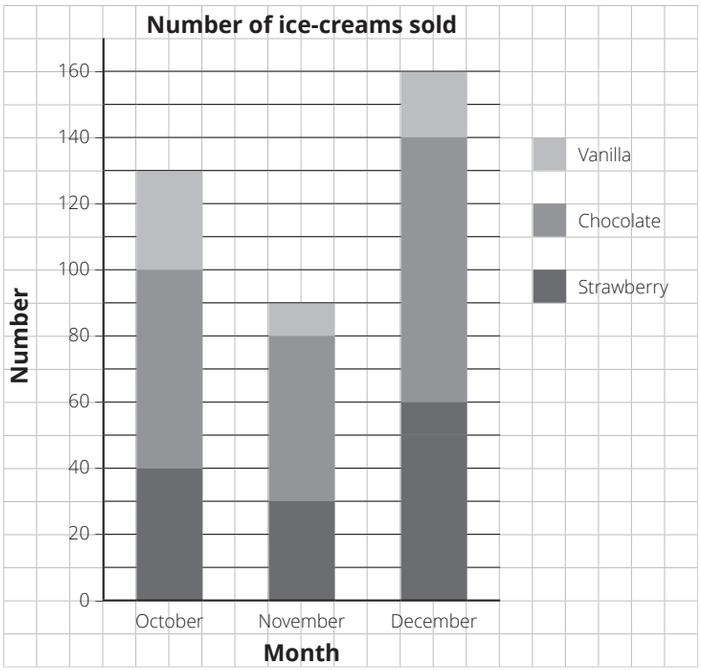


a Are these statements true or false? Put a tick in the correct column.

	TRUE	FALSE
This is a stacked bar graph.		✓
Half the learners walk to school.	✓	
The same number of learners travel by taxi and by bus.	✓	
More learners travel to school by taxi than by car		✓

b Compare the number of learners that travel to school by bus and by car.
Write two sentences.
Use fractions in your answer.
(Some possible answers:
More learners travel to school by car than by bus. A quarter of the learners travel to school by car and one eighth of learners travel to school by bus.)

3 Look at the bar graph. Answer the questions.



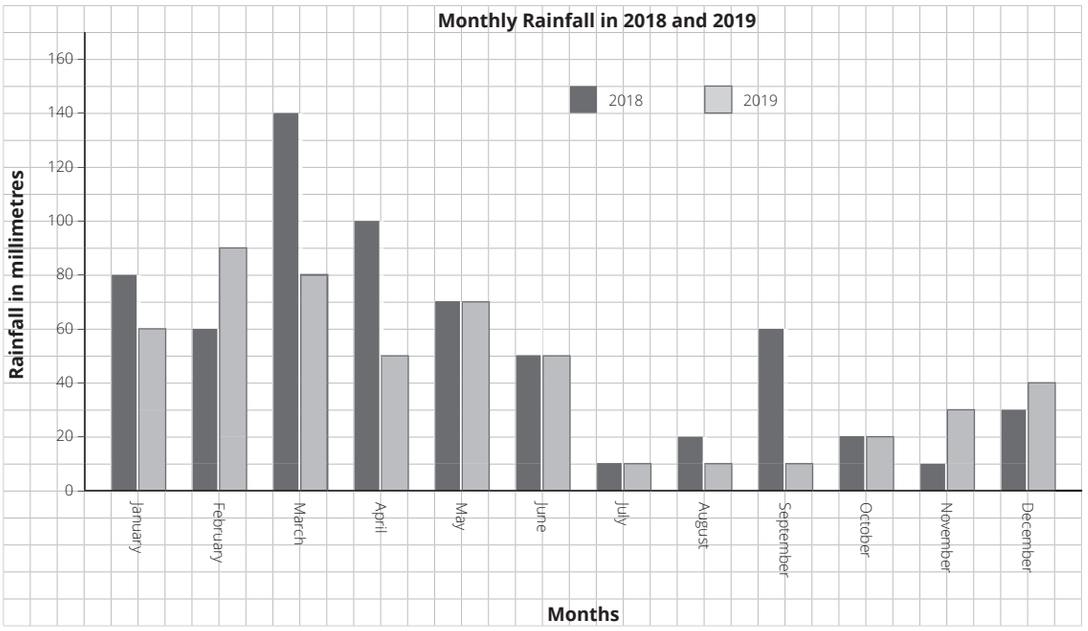
a. During which month were the least ice-creams sold? (November)

b. Give one reason why more ice-creams were sold in December than in the other two months. (December is during school holidays/ It might have been hotter during December than in the other two months/ Christmas is in December.)

c. Which flavour was the most popular in all three months? (Chocolate)

d. About 160 ice-creams were sold in December.
How many were strawberry ice-creams? (about 60)
How many were chocolate ice-creams? (about 80)
How many were vanilla ice-creams? (about 20)

4. Look at the bar graph. Answer the questions.



a. During which month in 2019 did it rain the most? (February)

b. How much did it rain in March 2019? (80 mm)

c. What is the difference in the amount of rainfall received in January 2018 and January 2019?
(80 – 60 = 20 mm)

d. During which five months was the same amount of rainfall received in 2018 and 2019?
(May, June, July, and October)

5 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 revised frequency tables, pictographs, bar graphs and pie charts.**

We know that information (data) can be recorded in words, tables, pictographs, pie charts and bar graphs.

Unit 4: Multiplication

INTRODUCTION

This unit focuses on multiplication of up to 2-digit numbers by a 1-digit number using a variety of strategies, including the column method.

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

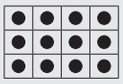
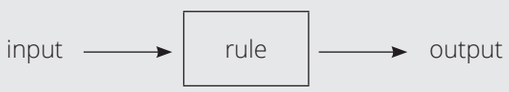
Framework dimension	How the framework dimension is developed in this unit
Conceptual understanding	Use of simplified pictorial representations and a range of strategies, including column method (vertical algorithm).
Procedural fluency	Learners do 2-digit by 1-digit multiplication calculations correctly and quickly applying the knowledge of multiplication table.
Strategic competence	Learners manage the carrying in the multiplication calculations.
Reasoning	Learners decide what strategy to use when solving multiplication word problems.

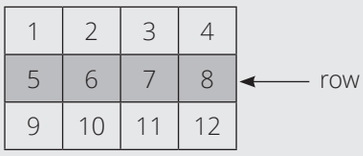
In this unit, we build a **learning centred classroom** by paying attention to:

		Examples
Concept development	✓	Done in every lesson
Speaking mathematics	✓	Learners discuss with their partner and the whole class how to use the column method multiply
Practising procedures	✓	Learners practise how to use a variety of different strategies when multiplying 2-digit by 1-digit numbers
Purposeful assessment	✓	The June examination is designed to give all stakeholders an insight into learners' understanding
Problem solving	✓	Learners solve multiplication word problems which involve the operation of multiplication
Explaining concepts and procedures	✓	Learners explain how and why they recorded the way they did when using the column method
Connecting topics and concepts	✓	Link to previous lesson, correction of classwork and homework activities, as well as consolidation activities are designed to address gaps and learners' activities
Addressing gaps in learners' knowledge	✓	
Applying maths in context	✓	The word problems place maths in context. For example: financial context

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
array	Set of objects or numbers that are arranged in an order, often in rows and columns in a grid Example: 
calculate	Find the answer. Work out the solution
column	Vertical arrangement of items
column method	Way of calculating in which numbers are arranged vertically
digit	A symbol that is used to represent numbers The digits we use in the base ten number system are 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9 With these 10 digits, we can represent any number Example: 49 is made up of 2 digits, namely, 4 and 9. 4 represents four tens (40) and 9 represents nine ones (9) 205 is made up of 3 digits, namely, 2, 0 and 5
each	Every item
multiply	Operation in which you increase something a number of times
numeral	Any symbol or word for a number Example: 3; three and ||| are all numerals
output number	Number produced after an operation has been performed or a rule applied. Number that comes out of a flow diagram 
place holder	A symbol or a letter standing in place of a number or an answer A symbol can have many different values Example: 3 × 12 = ☐. Here, ☐ = 36

Term	Explanation / diagram
row	List that goes horizontally / from side to side Example: 
word problem	Maths problem which is stated using words and numerals Sometimes it is represented in diagrams

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	51-56 121-123 190-191	46-52 77-80 130-136 232-235	37-41, 66-68, 104-110, 233-238	30-33 48-51 80-85 144-147	18-28 44-48 79-83 158-161	60-74 161-172 275-280	27-37 154-160 221-228	43-47 91-97 141-148 232-235	19-22 51-52 156-158
TG	32-35 84-86 156-158	69-73 77-82 163-171 271-272	59-67 80-83 106-112 160-162	24-25 39-42 66-67 112-114	10-13 20-22 37-39 81-83	64-77 177-186 315-321	23-32 86-94 179-187	11-15 69-75 186-196 310-314	16-20 32-35 81-82

UNIT PLAN AND OVERVIEW FOR UNIT 3: Approximation and calculation

LP	Lesson objectives Learners will be able to:	Lesson Resources Learners need classwork books, LABs, writing materials and a pair of scissors for all lessons	Date completed
38	multiply a 2-digit number by 1-digit number mentally.	Teacher: A3 10 × 10 multiplication table grid	
39	break down a two-digit number so that they can multiply by Tens and Ones and then add the two.	Teacher: 4 strips representing 12 sweets in a box	
40	use the column method to multiply a 2-digit number by a 1-digit number.	Teacher: Base 10 kit; place value cards Learner: None	
41	use the column method to multiply a 2-digit number by a 1-digit number.	Teacher: None Learner: None	
42	use the column method to multiply a 2-digit number by a 1-digit number.	Teacher: None Learner: None	
43	solve word problems in which they need to multiply a 2-digit number by a 1-digit number.	Teacher: None Learner: None	
44	revise and consolidate multiplication facts and multiply a 2-digit number by 1-digit number.	Teacher: Textbooks (if available) Learner: Textbooks (if available)	

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

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

What will you change next time? Why?

Lesson 38: Finding easy ways to multiply

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.		
CAPS topics: 1.1. Whole numbers: Multiplication		
Lesson Objective: Learners will be able to multiply a 2-digit number by 1-digit number mentally.		
Lesson Vocabulary: array, column, row, each, output number, digit		
Teacher Resources: A3 10 × 10 times table grid		
Date:	Week	Day

1 MENTAL MATHS (5 MINUTES)

		Answer			Answer
1	8 × 2 =	16	**6**	2 × 3 =	6
2	9 × 4 =	36	**7**	6 × 4 =	24
3	3 × 5 =	15	**8**	10 × 2 =	20
4	7 × 4 =	28	**9**	1 × 5 =	5
5	9 × 3 =	27	**10**	4 × 3 =	12

2 LINK TO PREVIOUS LESSON (5 MINUTES)

This is the first lesson in this unit. There are no direct links to the previous lesson. However, through mental mathematics you can assess learners' multiplication ability. If many learners are not confident with the times tables, they should use the 10 ×10 grid to find the answer. You can give them more questions if the time allows.

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

This is the first lesson in this unit. There is no homework to correct.

4 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

By Grade 4 learners should know their times tables up to 10 × 10. They should be able to use these multiplication facts, as well as the multiples of 10, when multiplying and dividing two-digit numbers. Continue to give learners opportunities to practise their times tables, as is done in the Mental maths activities in this unit.

In this introductory lesson, learners revise and use their multiplication facts to multiply 2-digit numbers by 1-digit numbers.

Say: **Today we are learning to multiply 2-digit numbers by 1-digit numbers.**

Activity 1: Whole class activity and learners work in pairs

- Write on the board: **There are 10 eggs in a box, how many eggs are in 4 boxes?**
  Say: **Draw a picture of this story. Then write the number sentence of this story in your classwork book**.

- Call a learner to the board to write his/her number sentence for everyone to look at.
  ($4 \times 10 = \square$)

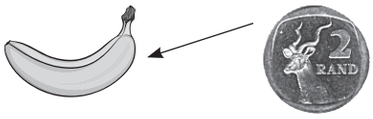
- Say: **Find the answer to $4 \times 10 = \square$**
  Do not rush to tell learners how to find the answer or what the answer is.
  Give learners a chance to discuss what the answer is with their partner and decide how to find the answer.
  Note: Check that the strategies are mathematically correct.
  (Examples: There are 4 tens; the answer is 40 eggs.)
  Let learners complete the number sentence and write the answer in their classwork books.
  Ask one learner to write the correct answer on the board. Other learners should correct their work if necessary.

- Ask: **How many eggs in 3 boxes?**
  (30 eggs or 3 tens. The answer is 30.)

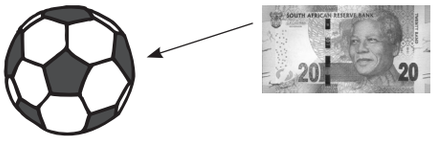
- Ask:
  - **How many eggs in 5 boxes?** ($5 \times 10 = 50$ eggs)
  - **How many eggs in 7 boxes?** ($7 \times 10 = 70$ eggs)

  Learners should write the number sentences and answers in their classwork book.

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

	Answers
1 One banana costs R2. 	
a How much will 3 bananas cost? Write the number sentence and find the answer.	$3 \times 2 = \square$ $3 \times 2 = R\ 6$
b How much will 5 bananas cost? Write the number sentence and find the answer	$5 \times 2 = \square$ $5 \times 2 = R\ 10$

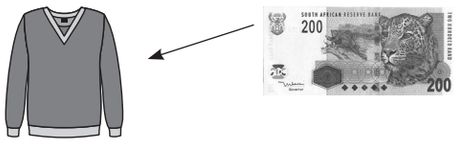
2 One ball costs R20.



a How much will 3 balls cost?
Write the number sentence and find the answer.

b How much will 5 balls cost?
Write the number sentence and find the answer

3 One jersey costs R200.



a How much will 3 jerseys cost?
Write the number sentence and find the answer.

b How much will 5 jerseys cost?
Write the number sentence and find the answer

Answers

$3 \times 20 = \square$
$3 \times 20 = R\ 60$

$5 \times 20 = \square$
$5 \times 20 = R\ 100$
Note: If learners struggle to find the answer immediately, they can draw five R20 bank notes and count in 20s.

$3 \times 200 = \square$
$3 \times 200 = R\ 600$

$5 \times 200 = \square$
$5 \times 200 = R\ 1\ 000$

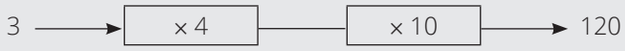
- Before going onto Activity 2, draw the following table on the board.
  Let learners see the pattern in the way the answers increase.

3 × 2 = 6	5 × 2 = 10
3 × 20 = 60	5 × 20 = 100
3 × 200 = 600	5 × 200 = 1 000

Activity 2: Whole class activity and learners work on their own

- Ask, as you write the number sentence $3 \times 40 = \square$ on the board:
  What is three times forty? (120)
- Ask: **How did you work out the answer?**
  Listen carefully as learners explain what method they used to find the answer.
  Answers will vary, but it is likely that many of learners will say: 3 times 4 equals twelve.
  Twelve times ten equals 120 or 40 is 4 tens, so (3×4) tens = 12 tens = 120

- Ask, as you draw the flow diagram on the board: **If I did it like this would I be correct?**



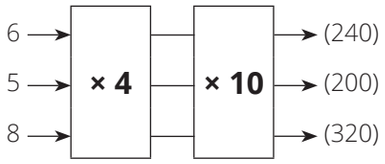
(Yes, $3 \times 4 = 12$ and $12 \times 10 = 120$)

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

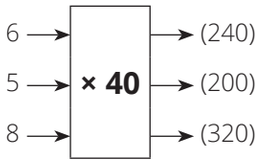
- Walk around the classroom to support learners as needed.
- Correct Activity 2 with learners so that they can receive immediate feedback.
- Answers in brackets.

1 Write the missing output numbers on the flow diagrams.

a



b



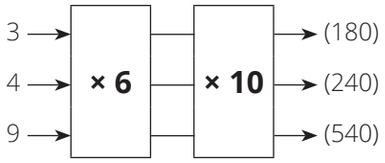
2 **a** What do you notice about the answers in **a** and **b**? (They are the same)

b Why? (Multiplying by 4 and then by 10 is the same as multiplying by 40)

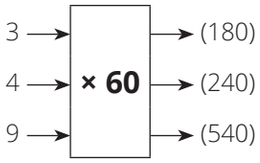
3 Do you think the flow diagrams a. and b. below will give you the same answers? (Yes)

Check by writing the answers for each flow diagram.

a



b



4 Is multiplying by 6 and then by 10 is the same as multiplying by 60 which is 6×10? (Yes)

5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain what learners need to do for homework.
- Read the question in the LAB with learners. Make sure all the learners understand what to do.
- Answers in brackets.

Complete the times table grid

×	1	2	3	4	5	6	7	8	9	10
1	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2	(2)	(4)	(6)	(8)	(10)	(12)	(14)	(16)	(18)	(20)
3	(3)	(6)	(9)	(12)	(15)	(18)	(21)	(24)	(27)	(30)
4	(4)	(8)	(12)	(16)	(20)	(24)	(28)	(32)	(36)	(40)
5	(5)	(10)	(15)	(20)	(25)	(30)	(35)	(40)	(45)	(50)
6	(6)	(12)	(18)	(24)	(30)	(36)	(42)	(48)	(54)	(60)
7	(7)	(14)	(21)	(28)	(35)	(42)	(49)	(56)	(63)	(70)
8	(8)	(16)	(24)	(32)	(40)	(48)	(56)	(64)	(72)	(80)
9	(9)	(18)	(27)	(36)	(45)	(54)	(63)	(72)	(81)	(90)
10	(10)	(20)	(30)	(40)	(50)	(60)	(70)	(80)	(90)	(100)

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 learned some ways of multiplying a 2-digit number by a 1-digit number.**

Lesson 39: Breaking down numbers to multiply

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 1.1. Whole numbers: Multiplication
Lesson Objective: Learners will be able to break down a two-digit number so that they can multiply by Tens and Ones and then add the two.
Lesson Vocabulary: multiply, digit
Teacher Resources: 4 strips representing 12 sweets in a box.
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

		Answer			Answer
1	3 × 6 =	18	**6**	5 × 6 =	30
2	6 × 6 =	36	**7**	1 × 6 =	6
3	9 × 6 =	54	**8**	8 × 6 =	48
4	2 × 6 =	12	**9**	4 × 6 =	24
5	7 × 6 =	42	**10**	10 × 6 =	60

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Say: **Look at the table in the LAB.**
  Say: **Complete the table.**

	1	2	3	4	5	(6)	7	8	(9)	10
×7	(7)	14	(21)	(28)	(35)	42	(49)	(56)	63	(70)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 38 are provided in Lesson 38.
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 continue to multiply 2-digit numbers by 1-digit numbers. The emphasis is on building the concept of breaking up a number so that we multiply by ones and by multiples of 10, and then add the two. For example: 43 × 6 can be done by multiplying 6 and 3 and 6 and 40 and then adding the two answers together.

Activity 1 starts by presenting the multiplication in context, using simplified pictorial representations.
In Activity 2 learners draw pictures to show how they can multiply 2-digit numbers by 1-digit numbers.
In Activity 3 learners do the calculations without drawing pictures.
In the next lesson learners will start to record the calculation in columns.

Say: **Today we are learning more ways of multiplying numbers.**

Activity 1: Whole class activity and learners work in pairs

- You need the 4 strips representing 12 sweets in a box. Cut out the strips before the lesson.

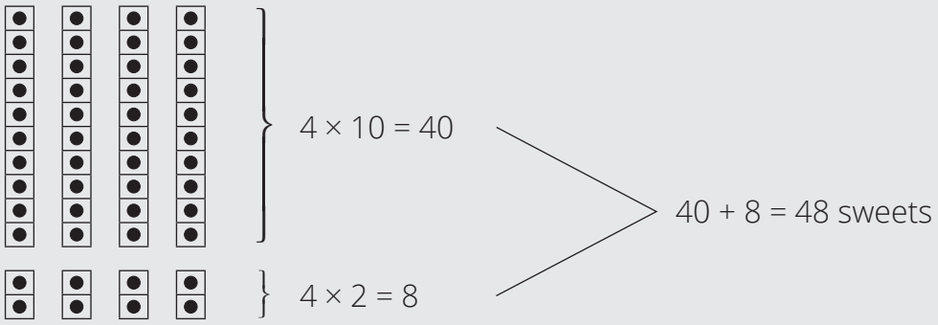
- Say: **There are 4 boxes of sweets. There are twelve sweets in each box.**
  Display a strip representing a box of sweets on the board:

  Say: **This is the picture of one box of sweets.**
  Ask: **How many sweets are there in 4 boxes?**

- Say: **Discuss with your partner. Draw pictures in your classwork book to find the answer. You can use any method you like, but you must not count the sweets one-by-one.**

- Give learners time to work out a way of calculating the answer.
  Allow one or two pairs to come to the board to show what they did. They can use the teacher's strips.

- If learners do not do something like this, say: **I am cutting each strip of 12 into a strip of 10 and a strip of 2.**
  Then demonstrate as follows:
  Say: **Calculate by representing the boxes of sweets as 10 sweets and 2 sweets:**



- Say: **Draw the Tens and Ones in your classwork book to show how you multiplied four by ten and by two and then added to get the answer.**

Activity 2: Learners work in pairs

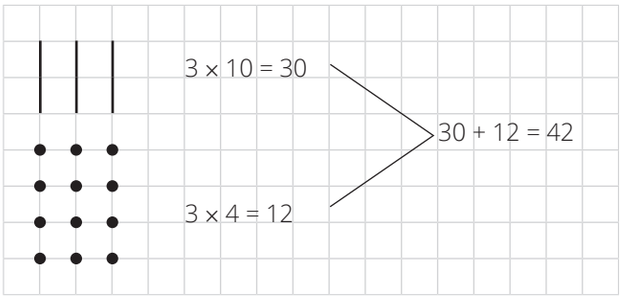
Say: **Do Activity 2 in your LAB.**

- Walk around the classroom to support learners as needed.
- Correct Activity 2 with learners so that they can receive immediate feedback.
- Answers in brackets.

Use lines and dots to stand for Tens and Ones.

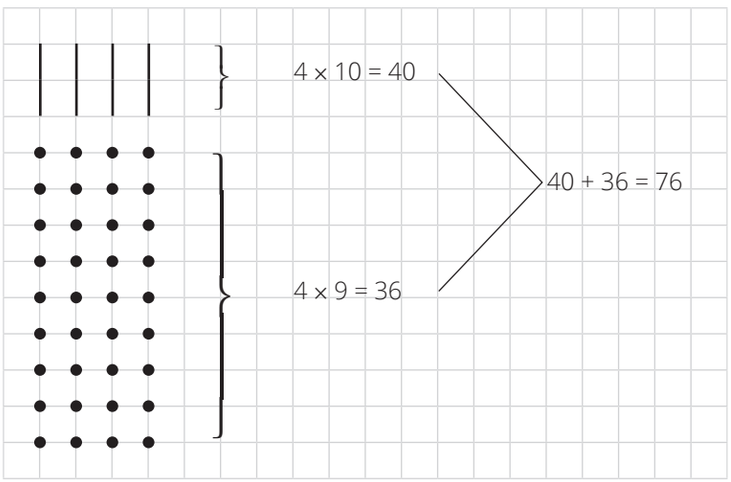
1 Calculate 3 × 14 = ☐. Draw lines and dots to show how you get your answer.

ANSWER



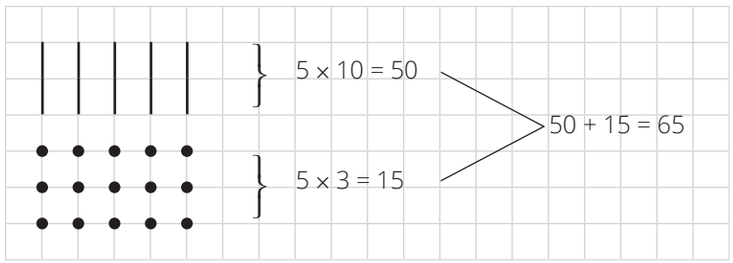
2 Calculate 4 × 19 = ☐. Draw lines and dots to show how you get your answer.

ANSWER



3 Calculate 5 × 13 = ☐. Draw lines and dots to show how you get your answer.

ANSWER



Activity 3: Learners work on their own

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

- Walk around the classroom to support learners as needed.
- Correct Activity 3 with learners so that they can receive immediate feedback.
- Answers in brackets.

Note: learners are supposed to find the answers without using simplified pictorial representations. If you find that learners still need simplified pictorial representations, they can draw them.

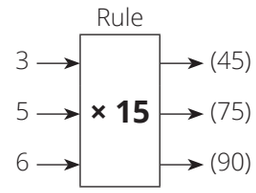
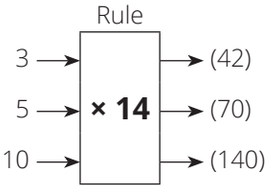
1. Calculate 6 × 11 = ☐. (6 × 10 = 60, 6 × 1 = 6, 60 + 6 = 66)

2. Calculate 8 × 12 = ☐. (8 × 10 = 80, 8 × 2 = 16, 80 + 16 = 96)

3. Calculate 7 × 13 = ☐. (7 × 10 = 70, 7 × 3 = 21, 70 + 21 = 91)

5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain what learners need to do for homework.
- Read the question in the LAB with learners. Make sure all the learners understand what to do.
- Answers in brackets.

Complete the flow diagrams.	
1	
2	

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 learned to break numbers between 10 and 20 into 10s and ones to make multiplication easier.**

Lesson 40: Using the column method to multiply (1)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 1.1. Whole numbers: Multiplication
Lesson Objective: Learners will be able to use the column method to multiply a 2-digit number by a 1-digit number.
Lesson Vocabulary: digit, multiply, column, calculate
Teacher Resources: Base 10 Kit; Place Value (Flard) Cards
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

	Which multiple of 10 is this number closest to?	Answer		Which multiple of 10 is this number closest to?	Answer
1	2 × 6 =	12	**6**	4 × 6 =	24
2	0 × 6 =	0	**7**	5 × 6 =	30
3	6 × 6 =	36	**8**	3 × 6 =	18
4	8 × 6 =	48	**9**	7 × 6 =	42
5	10 × 6 =	60	**10**	9 × 6 =	54

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Say: **Look at the table in your LAB.**
  Say: **Complete the table.**

	1	2	(3)	4	5	6	7	(8)	9	(10)
×10	(10)	(20)	30	(40)	(50)	(60)	(70)	80	(90)	100

- Say: **Use this table and the six times tables to calculate sixteen multiplied by six. Write the number sentence and the calculation in your classwork book.**
  6 × 16 = ☐ (6 × 10 = 60; 6 × 6 = 36; 60 + 36 = 96)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 39 are provided in Lesson 39.

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 think about how to record a 2-digit by 1-digit multiplication calculation in columns and then practise using the column method when multiplying a 2-digit number by a 1-digit number.

Learners have already used the column method to add and subtract numbers.

Say: **Today we are learning to use the column method to multiply a 2-digit number by a 1-digit number.**

Activity 1: Whole class activity and learners work in pairs

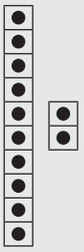
- Ask, as you write on the board: **There are 12 bags of apples. There are 4 apples in each bag. How many apples are there altogether?**
  Say: **Write the number sentence in your classwork book.** ($12 \times 4 = \square$)

- Say: **Discuss with your partner. Think about how to do the calculation using the column method.**
  Write your calculations in your classwork book.
  Allow learners time to think about and discuss how to write the multiplication in columns. Do not rush to show them what to do.
  If learners struggle to get started, support them by writing the numbers in columns on the board.
  Once all learners have written the numbers in columns, ask:
  Who would like to come to the board to show us what you wrote?

- Follow carefully what learners say and write.
  Make sure that all digits are written in the appropriate columns.
  Note: learners must not forget to write the multiplication sign.

	T	O
	1	2
×		4

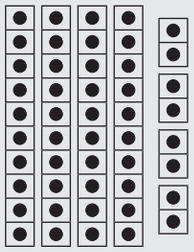
- Place base ten kit on the top of 12



- Ask: **How did we multiply 12 by 4 in the previous lesson?**
  (First, we worked out 4 × 10 = 40; then we worked out 4 × 2 = 8 and then we worked out 40 + 8 = 48)

- As the learners explain how to multiply, place 4 Tens and 4 lots of 2 Ones under the multiplication.

	T	O
	1	2
×		4



- Say: **We can write numbers in the columns instead of using the Base Ten kit.**
- Say: **Remember that when we used the column method for addition and subtraction, we always started from One's place. For multiplication we also start in the One's place.**

- Explain:

	T	O
	1	2
×		4
		8
+	4	0
	4	8

O: 4 × 2 = 8

T: 4 × 10 = 40 (that 1 is not 1, it is 10)

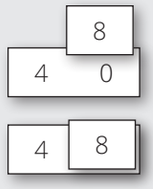
You added the 8 and the 40

- Say: **As we did for addition and subtraction, we can write the answer in one row using Place Value Cards (Flard Cards) like this:**

	T	O
	1	2
×		4
	4	8

	T	O
	1	2
×		4
		8

	T	O
	1	2
×		4
	4	8



- Let all learners complete their columns in the classwork books.
- Leave the example and explanation on the board so that learners can refer to it while they do Activity 2.

Activity 2: Learners work on their own

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

- Walk around the classroom to support learners as needed.
- If learners get stuck, remind them of the example on the board.
- Correct Activity 2 with learners so that they can receive immediate feedback.
- Answers in brackets.

Use the column method to calculate the answer:

1. 12 × 3 = ☐

		T	O

2. 24 × 2 = ☐

		T	O

3. 20 × 4 = ☐

		T	O

4. 43 × 2 = ☐

		T	O

Answers

	T	O
	1	2
×		3
	3	6

	T	O
	2	4
×		2
	4	8

	T	O
	2	0
×		4
	8	0

	T	O
	4	3
×		2
	8	6

5. 32 × 3 = ☐

		T	O

6. 40 × 2 = ☐

		T	O

Answers

	T	O
	3	2
×		3
	9	6

	T	O
	4	0
×		2
	8	0

UNIT 4

5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain what learners need to do for homework.
- Read the question in the LAB with learners. Make sure all the learners understand what to do.
- Answers in brackets.

Use the column method to calculate the answer:

1 23 × 3 = ☐

		T	O

Answers

	T	O
	2	3
×		3
	6	9

2 34 × 2 = ☐

		T	O

3 30 × 3 = ☐

		T	O

4 42 × 2 = ☐

		T	O

Answers

	T	O
	3	4
×		2
	6	8

	T	O
	3	0
×		3
	9	0

	T	O
	4	2
×		2
	8	4

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 learned to use the column method when multiplying.**

Lesson 41: Using the column method to multiply (2)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 1.1. Whole numbers: Multiplication
Lesson Objective: Learners will be able to use the column method to multiply a 2-digit number by a 1-digit number.
Lesson Vocabulary: column, column method, place holder, multiply, calculate, numeral
Resources: None
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

		Answer			Answer
1	2 × 6 =	12	**6**	10 × 6 =	60
2	0 × 6 =	0	**7**	7 × 6 =	42
3	9 × 6 =	54	**8**	8 × 6 =	48
4	4 × 6 =	24	**9**	6 × 6 =	36
5	5 × 6 =	30	**10**	5 × 6 =	30

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Write this calculation in the board:

	T	O
	4	2
×		2

- Let all learners do the calculation in their classwork book.
- Ask: **Who would like to come to the board and do the calculation for us?** (Answer)

	T	O	
	4	2	
×		2	
		4	← Ask: **How did you get 4?** (2 × 2 Ones = 4 Ones)
	8	0	← Ask: **How did you get 80?** (2 × 4 Tens = 8 Tens)
	8	4	← Ask: **How did you get 84?** (4 + 80 = 84)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 40 are provided in Lesson 40.

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 is a continuation of Lesson 40, with one additional concept. In this lesson, the 2-digit by 1-digit calculations result in situations in which digits are carried to the Tens when multiplying Ones.

Say: **Today we are practising multiplication.**

Activity 1: Whole class activity and learners work in pairs

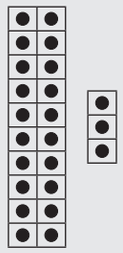
- Ask, as you write the problem on the board:
  If there are Twenty-three apples in one box, how many apples will there be in four boxes?

- Say: **Write the number sentence in your classwork book.** ($23 \times 4 = \square$)

- Ask: **Who would like to come to the board to show the class how to write the multiplication in columns?**

	H	T	O
		2	3
×			4

- Say: **Place your Base Ten kit above 23.**



H	T	O
	2	3
×		4

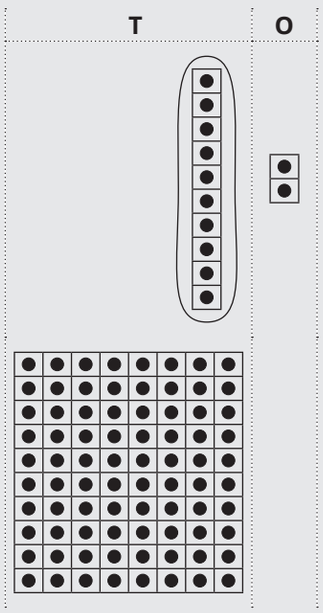
- Say: **Work out the answer in your classwork book.**

	H	T	O
		2	3
×			4
		①	2
		8	0
		9	2

Ask: **How did you get 12?**
(4 × 3 Ones = 12 Ones)
Say: **Show 12 with your Base Ten kit.** (See below)

Ask: **How did you get 80?**
(4× 2 Tens = 80)
Say: **Show 80 with your Base Ten kit.** (See below)

Ask: **How did you get 92?**
(12 + 80 = 92)
Ask: **When you combine all your Base Ten kit, what do they show you?** (92)



- Say: **We carried ten from 12 to the Tens column**
- Say: **Write the answer in your classwork book.** (There will be 92 apples in four boxes.)

Activity 2: Learners work in pairs

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

- Walk around the classroom to support learners as needed.
- If learners get stuck, remind them of the example on the board.
- Correct Activity 2 with learners so that they can receive immediate feedback.
- Answers provided.

Use the column method to calculate the following:

1. 48 × 2 = ☐

		T	O

2. 24 × 3 = ☐

		T	O

3. 26 × 3 = ☐

		T	O

Answers

		T	O
		4	8
	×		2
		1	6
	+	8	0
		9	6

OR

		T	O
		^{1}4	8
	×		2
		9	6

		T	O
		2	4
	×		3
		1	2
	+	6	0
		7	2

OR

		T	O
		^{1}2	4
	×		3
		7	2

		T	O
		2	6
	×		3
		1	8
	+	6	0
		7	8

OR

		T	O
		^{1}2	6
	×		3
		7	8

4. 29 × 2 = ☐

		T	O

Answers

		T	O
		2	9
	×		2
		1	8
	+	4	0
		5	8

OR

		T	O
		^{1}2	9
	×		2
		5	8

Activity 3: Learners work on their own

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

- Walk around the classroom to support learners as needed.
- If learners get stuck, remind them of the example on the board.
- Correct Activity 3 with learners so that they can receive immediate feedback.
- Answers provided.

Use the column method to calculate the following:

1. 15 × 3 = ☐

		T	O

2. 38 × 2 = ☐

		T	O

Answers

		T	O
		1	5
	×		3
		1	5
	+	3	0
		4	5

OR

		T	O
		^{1}1	5
	×		3
		4	5

		T	O
		3	8
	×		2
		1	6
	+	6	0
		7	6

OR

		T	O
		^{1}3	8
	×		2
		7	6

3. 13 × 5 = ☐

		T	O

4. 23 × 4 = ☐

		T	O

Answers

		T	O
		1	3
	×		5
		1	5
	+	5	0
		6	5

OR

		T	O
		^{1}1	3
	×		5
		6	5

		T	O
		2	3
	×		4
		1	2
	+	8	0
		9	2

OR

		T	O
		^{1}2	3
	×		4
		9	2

5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain what learners need to do for homework.
- Read the question in the LAB with learners. Make sure all the learners understand what to do.
- Answers given.

Use the column method to calculate the following:

1 12 × 7 = ☐

		T	O

Answers

		T	O
		1	2
	×		7
		1	4
	+	7	0
		8	4

OR

		T	O
		^{1}1	2
	×		7
		8	4

2 16 × 3 = ☐

		T	O

3 25 × 3 = ☐

		T	O

Answers

		T	O
		1	6
	×		3
		1	8
	+	3	0
		4	8

OR

		T	O
		^{1}1	6
	×		3
		4	8

		T	O
		2	5
	×		3
		1	5
	+	6	0
		7	5

OR

		T	O
		^{1}2	5
	×		3
		7	5

UNIT 4

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 practised multiplication.**

Lesson 42: Using the column method to multiply (3)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 1.1. Whole numbers: Multiplication
Lesson Objective: Learners will be able to use the column method to multiply a 2-digit number by a 1-digit number.
Lesson Vocabulary: column, column method, place holder, multiply, calculate, numeral
Resources: None
Date: Week Day

1 MENTAL MATHS (5 MINUTES)

		Answer			Answer
1	2 × 6 =	12	**6**	5 × 3 =	15
2	0 × 3 =	0	**7**	7 × 6 =	42
3	9 × 3 =	27	**8**	8 × 3 =	24
4	4 × 6 =	24	**9**	9 × 6 =	54
5	10 × 3 =	30	**10**	8 × 6 =	48

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Write this calculation in the board:

	T	O
	4	8
×		2
+		

- Let the learners do the calculation in their classwork book.
- Ask: **Who would like to come to the board and do the calculation for us?**

	T	O	
	4	8	
×		2	
	1	6	← Ask: **How did you get 16?** (2 × 8 Ones = 16 Ones)
	8	0	← Ask: **How did you get 80?** (2 × 4 Tens = 8 Tens)
	9	6	← Ask: **How did you get 96?** (16 + 80 = 96)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 41 are provided in Lesson 41.

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 is a continuation of Lesson 41, with one additional concepts. In this lesson, the 2-digit by 1-digit calculations result in situations in which digits are carried to the Hundreds column.

Say: **Today we are practising multiplication.**

Activity 1: Whole class activity and learners work in pairs

- Ask, as you write the problem on the board:
  If there are forty-two eggs in one box, how many eggs will there be in four boxes?

  Say: **Write the number sentence in your classwork book.** (42 × 4 = ☐)

- Ask: **Who would like to come to the board to show the class how to write the multiplication in column?**
  Answer:

	H	T	O
		4	2
×			4

- Say: **Work out the answer in your classwork book.**
- Let a learners to show her/his work on the board for correction.
  (Answer)

H		T	O
		4	2
×			4
			8
+	①	6	0
	1	6	8

Ask: **How did you get 8?** (4 × 2 Ones = 8 Ones)
Ask: **How did you get 160?** (4 × 4 Tens = 16 Tens)
We carried 1 H from 160 to the Hundreds column)
Ask: **How did you get 168?** (8 + 160 = 168)

- Say: **There will be 168 eggs in four boxes.**

Activity 2: Learners work in pairs

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

- Walk around the classroom to support learners as needed.
- If learners get stuck, remind them of the example on the board.
- Correct Activity 2 with learners so that they can receive immediate feedback.
- Answers provided.

Use the column method to calculate:

1 42 × 3 = ☐

		4	2
×			3
			6
+	1	2	0
	1	2	6

2 54 × 2 = ☐

		5	4
×			2
			8
+	1	0	0
	1	0	8

3 41 × 9 = ☐

		4	1
×			9
			9
+	3	6	0
	3	6	9

4 60 × 6 = ☐

		6	0
×			6
			0
+	3	6	0
	3	6	0

(Check this calculation carefully. Many learners may say 6 × 0 = 6.)

Activity 3: Learners work on their own

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

- Walk around the classroom to support learners as needed.
- If learners get stuck, remind them of the example on the board.
- Correct Activity 3 with learners so that they can receive immediate feedback.
- Answers provided.

Use the column method to calculate the following:

1

	H	T	O
		4	1
×			1

Answers

	H	T	O
		4	1
×			1
			1
+		4	0
		4	1

2

	H	T	O
		4	1
×			2

3

	H	T	O
		4	1
×			3

4

	H	T	O
		4	1
×			4

5

	H	T	O
		4	1
×			5

6

	H	T	O
		4	1
×			6

Answers

	H	T	O
		4	1
×			2
			2
+		8	0
		8	2

	H	T	O
		4	1
×			3
			3
+	1	2	0
	1	2	3

	H	T	O
		4	1
×			4
			4
+	1	6	0
	1	6	4

	H	T	O
		4	1
×			5
			5
+	2	0	0
	2	0	5

	H	T	O
		4	1
×			6
			6
+	2	4	0
	2	4	6

2

	H	T	O
		4	1
×			7

3

	H	T	O
		4	1
×			8

9

	H	T	O
		4	1
×			9

Answers

	H	T	O
		4	1
×			7
			7
+	2	8	0
	2	8	7

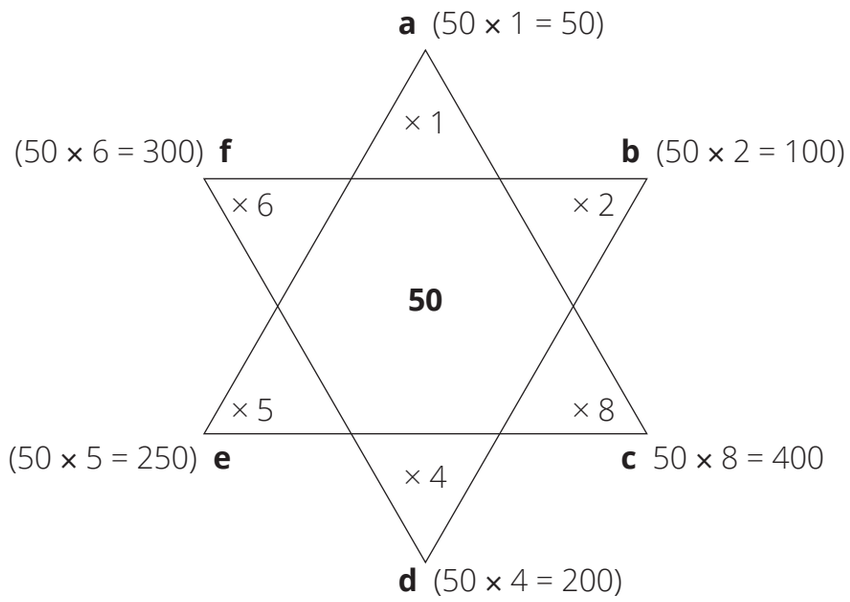
	H	T	O
		4	1
×			8
			8
+	3	2	0
	3	2	8

	H	T	O
		4	1
×			9
			9
+	3	6	0
	3	6	9

5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain what learners need to do for homework.
- Read the question in the LAB with learners. Make sure all the learners understand what to do.
- Answers in brackets.

Write the number sentence. The answer to c. has been done for you as an example.



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 practised multiplication.**

Lesson 43: Using the column method to multiply (4)

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.		
CAPS topics: 1.1. Whole numbers: multiplication		
Lesson Objective: Learners will be able to solve word problems in which they need to multiply a 2-digit number by a 1-digit number.		
Lesson Vocabulary: column method, word problem, calculate		
Resources: None		
Date:	Week	Day

1 MENTAL MATHS (5 MINUTES)

		Answer			Answer
1	3 × 4 =	12	**6**	10 × 2 =	20
2	6 × 2 =	12	**7**	5 × 4 =	20
3	2 × 4 =	8	**8**	7 × 2 =	14
4	1 × 2 =	2	**9**	10 × 4 =	40
5	0 × 4 =	0	**10**	9 × 2 =	18

2 LINK TO PREVIOUS LESSON (5 MINUTES)

- Write the number sentence on the board: 24 × 6 = □

- Say: **Write a word problem to match this number sentence.**
  Give learners time to discuss and write a suitable word sentence.

- Ask: **Who would like to read their word story to us?**
  (There are many possible answers. Listen carefully to check that the word problem does, indeed require the operation of multiplication.
  Example: There are 6 cupcakes in a packet. How many cupcakes in 24 packets?)

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 42 are provided in Lesson 42.

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 to solve word problems involving the multiplication of a 2-digit number by a 1-digit number when calculations result in situations where digits are carried to the Tens (when multiplying Ones) and to Hundreds (when multiplying Tens).

Say: **Today we are learning to solve word problems involving multiplication.**

Activity 1: Whole class activity

- Write the first calculation on the board. Leave all three calculations on the board for the learners to refer to as they work on Activity 1 in their LAB.

	H	T	O	
		4	2	
×			7	
		□	□	← 7 × □
+	□	□	□	← 7 × □
	□	□	□	

- Go through the calculation step-by-step with the whole class.

	H	T	O	
		4	2	
×			7	
		(1	4)	← 7 × (2)
+	(2	8	0)	← 7 × (40)
	(2	9	4)	

- Write the second calculation on the board:
  Do the shaded part step-by-step with the whole class.

	H	T	O	
		1	8	
×			9	
		7	2	O: 9 × 8 = 72
+		9	0	T: 9 × 10 = 90
	1	6	2	

UNIT 4

- Write the third calculation on the board:
  Do the shaded part step-by-step with the whole class.

	H	T	O
		2	9
×			8
		7	2
+	(1)1	6	0
	2	3	2

O: 8 × 9 = 72

T: 8 × 20 = 160

Activity 2: Learners work on their own

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

- Walk around the classroom to support learners as needed.
- If learners get stuck, remind them of the examples on the board.
- Correct Activity 2 with learners so that they can receive immediate feedback.
- Answers in brackets.

Fill in the missing numbers.

1

	H	T	O
		8	6
×			5
		(3	0)
+	(4	0	0)
	(4	3	0)

2

	H	T	O
		5	4
×			9
		(3	6)
+	(4	5	0)
	(4	8	6)

3

	H	T	O
		6	8
×			3
	(1)	(2	4)
+	(1	8	0)
	(2	0	4)

4

	H	T	O
		3	9
×			8
	(1)	(7	2)
+	(2	4	0)
	(3	1	2)

Activity 3: Learners work on their own

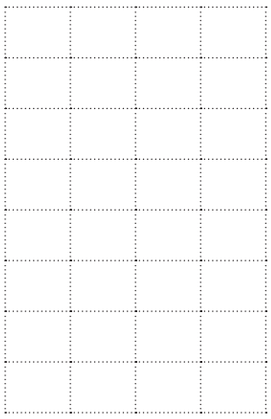
Say: **Complete Activity 3 in your LAB.**

- Walk around the classroom to support learners as needed.
- You might need to remind some learners that there are 7 days in a week.
- Correct Activity 3 with learners so that they can receive immediate feedback.
- Answers are given.

1 One box of cereal costs R75.
How much will eight boxes cost?

a Write the number sentence: _____

b Do the calculation. Use the column method.



c Answer: _____

Answers

$75 \times 8 = \square$

	H	T	O
		7	5
×			8
	(1)	(4	0)
+	(5	6	0)
	(6	0	0)

Eight boxes will cost R600

UNIT 4

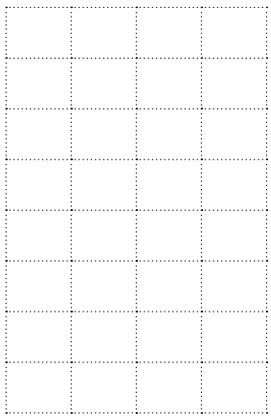
Answers

2 How much will nine pairs of socks cost if one pair of socks costs R49?

a Write the number sentence: _____

49 × 9 = ☐

b Do the calculation. Use any method.



49 × 9 = R441

c Answer: _____

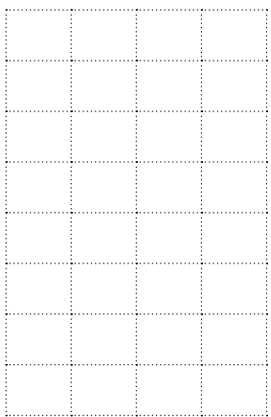
Nine pairs of socks will cost R441

3 There are 24 hours in a day. How many hours are there in a week?

a Write the number sentence: _____

24 × 7 = ☐

b Do the calculation. Use any method.



24 × 7 = 168

c Answer: _____

There are 168 hours in one week

5 HOMEWORK ACTIVITY (5 MINUTES)

- Explain what learners need to do for homework.
- Read the question in the LAB with learners. Make sure all the learners understand what to do.
- Answers in brackets.

Complete the multiplication table:

×	5	8	7	4	1	9	2	6	3
10	(50)	(80)	(70)	(40)	(10)	(90)	(20)	(60)	(30)
40	(200)	(320)	(280)	(160)	(40)	(360)	(80)	(240)	120
60	(300)	(480)	(420)	(240)	(60)	(540)	(120)	(360)	(180)
90	(450)	(720)	(630)	360	(90)	(810)	(180)	(540)	(270)
30	(150)	(240)	(210)	(120)	(30)	(270)	(60)	(180)	(90)
70	(350)	(560)	(490)	(280)	(70)	(630)	(140)	(420)	(210)
0	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

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 revised multiplying 2-digit numbers by 1-digit numbers.**

Lesson 44: Consolidation

Teacher's notes		
This lesson allows for consolidation of the previous days' lesson content.		
CAPS topics: 1.1. Whole numbers: multiplication 2.3. Number sentences		
Lesson Objective: Learners will revise and consolidate multiplication facts and multiplying a 2-digit number by 1-digit number.		
Lesson Vocabulary: multiply, digit, numeral, calculate		
Resources: Textbooks (if available)		
Date:	Week	Day

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

The main topic in this unit was multiplication facts and multiplying a 2-digit number by a 1-digit number.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

- Some learners do calculations by drawing dots or lines and counting in ones or by using skip counting. This slows learners down, increases the chance of learner errors, and reduces the chance of learning multiplication facts. It is essential that learners develop a strong number sense, procedural fluency and multiplication facts.
- Many learners confuse multiplying by zero with multiplying by one.

3 CORRECT HOMEWORK ACTIVITY (5 MINUTES)

The answers to the Homework Activity for Lesson 43 are provided in Lesson 43.

Use this time to purposefully address gaps in learners' knowledge and to identify and address learner errors.

4 CLASSWORK

Today we are going over what we learned in this unit. We will practise some multiplication facts, as well as multiplying a 2-digit number by a 1-digit number. You could use this time for learners to complete classwork or homework activities as necessary. You could use the Additional Activities from textbooks that you have or use the Consolidation Activity given.

Additional activities for consolidation

Refer to the table. Select additional activities from the textbook/s you have.

Use the answers given in the Teacher's Guide to mark the work.

	Fabulous	Oxford Headstart	Oxford Successful	Platinum	Premier	Sasol Inzalo	Solutions for All	Study & Master	Viva
LB	51-56 121-123 190-191	46-52 77-80 130-136 232-235	37-41, 66-68, 104-110, 233-238	30-33 48-51 80-85 144-147	18-28 44-48 79-83 158-161	60-74 161-172 275-280	27-37 154-160 221-228	43-47 91-97 141-148 232-235	19-22 51-52 156-158
TG	32-35 84-86 156-158	69-73 77-82 163-171 271-272	59-67 80-83 106-112 160-162	24-25 39-42 66-67 112-114	10-13 20-22 37-39 81-83	64-77 177-186 315-321	23-32 86-94 179-187	11-15 69-75 186-196 310-314	16-20 32-35 81-82

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

UNIT 4

Consolidation Activity

1 Complete the table.

×	2	7	5	1	0	10	50	100
5	(10)	(35)	(25)	(5)	(0)	(50)	(250)	(500)

2 Enter the numerals 1 to 9 in the place of ☐. Do the nine calculations.

ANSWERS

	H	T	O
		7	9
×			1
		7	9

	H	T	O
		7	9
×			2
		1	8
+	1	4	0
	1	5	8

	H	T	O
		7	9
×			3
		2	7
+	2	1	0
	2	3	7

ANSWERS

	H	T	O
		7	9
×			4
		3	6
+	12	8	0
	3	1	6

	H	T	O
		7	9
×			5
		4	5
+	3	5	0
	3	9	5

	H	T	O
		7	9
×			6
		5	4
+	4	2	0
	4	7	4

	H	T	O
		7	9
×			7
		6	3
+	14	9	0
	5	5	3

	H	T	O
		7	9
×			8
		7	2
+	15	6	0
	6	3	2

	H	T	O
		7	9
×			9
		8	1
+	16	3	0
	7	1	1

3 A small bus can transport 28 people.
How many people can be transported in 6 small buses?

a. Write the number sentence.

$(28 \times 6 = \square)$

b. Do the calculation. Use any method.

	H	T	O
×			
+			

$(28 \times 6 = 168)$

c. Answer: (168 people can be transported on six buses)

5 REFLECTION AND SUMMARY OF LESSON

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

Say: **Today we have revised multiplication facts and multiplying a 2-digit number by a 1-digit number.**