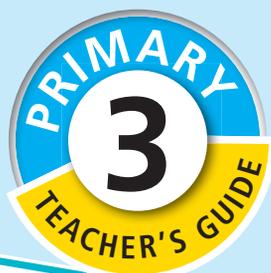


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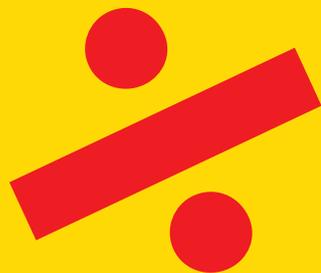
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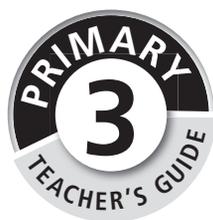


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Introduction

The purpose of the curriculum

The main objectives of the curriculum are to prepare your pupils to:

- acquire mathematical literacy necessary to function in an information age
- cultivate the understanding and application of mathematical concepts and skills necessary to thrive in the ever changing technological world
- develop the essential element of problem solving, communication, reasoning and connection within the study of Mathematics
- take advantage of the numerous career opportunities provided by Mathematics
- further their studies in Mathematics and other related fields.

The role of the teacher

One of the principal duties of a Mathematics teacher is to prepare and present good lessons to his or her pupils. It is your role to:

- be as well informed as possible on the scheme of work
- know the aims and objectives of each topic
- select appropriate content material
- decide on the best methods of presentation, such as group work, worksheets, question-answer sessions, debates, etc.
- keep informed about social and environmental issues and other current news in Nigeria and the rest of the world
- encourage learning that will promote creative and critical thinking in pupils through innovative teaching approaches.

To be effective in presentation, you, the teacher must do a written/typed plan for each lesson. This must include aims, objectives, resources, time frames, content for the lesson, activities, homework, assessment, and ideas/additional worksheets to cater for pupils requiring extension or learning support (remedial).

Prepare each topic in advance. Many teachers go into the classroom inadequately prepared. It is your responsibility as a Mathematics teacher to actively involve your pupils in the learning process. It is a proven fact that pupils learn far more by *doing* than by *listening*.

Mathematics involves being curious and asking questions. Wherever possible, ask questions to engage the pupils, encourage independent thought processes and develop problem-solving skills. Start your lessons by asking the pupils to write down answers to questions related to your lesson (approximately five). This will settle them into the lesson. You can use different types of questions in your lessons:

- **diagnostic**, enabling you to determine prior knowledge on the topic
- for **consolidation** of challenging concepts during the lesson
- for **stimulation** of interest in the subject
- for **concluding** the lesson.

This will assist you in finding out whether your pupils have understood the concepts/terminology in the lesson. It will also highlight any areas/concepts they may need to revise at home, or that you may need to revisit in the next lesson.

Teachers must ensure that they do not appear to have favourites in the class. It is important to devise a system that ensures you ask questions fairly, being careful not to embarrass weaker pupils if they cannot answer a question.

How to use the scheme of work

A scheme of work is defined as the part of the curriculum that you, the teacher, will be required to teach in any particular subject. Its primary function is to provide an outline of the subject matter and its content, and to indicate how much work a pupil should cover. The scheme of work allows you to clarify your thinking and plan and develop particular curriculum experiences that you believe may require more time and attention when preparing lessons. The criteria all teachers should bear in mind when planning a scheme of work are continuity in learning and progression of experience. You can add your own notes to the scheme of work provided in this *Teacher's Guide* on pages vii to xii.

The scheme of work is sequential. The sequence is aligned with the *Pupil's Book* and *Workbook*. Do not be tempted to jump around. Rather spend time carefully planning the term to ensure that you adhere to the sequence of teaching laid out in the scheme of work.

The year is divided into three terms.

Each term is divided into 13 weeks. There are 11 topics in Term 1, 9 topics in Term 2 and 8 topics in Term 3. The end of each term allows time for revision and an examination. This time frame may vary depending on the planning of your particular school.

Your management of the class will have an enormous influence on your ability to adhere to the time frames. Focus on effective discipline strategies. You will have fewer discipline issues if you are punctual, well prepared, follow a plan (write this on the board at the start of the lesson), keep your word (don't make empty threats) and consistently adhere to rules.

A teacher of Mathematics is a professional instructor who facilitates, promotes and influences pupils to achieve the outcomes of the scheme of work. It is the wish of the authors that the pupils will, at the end of each course in this series, attain a level of mathematical proficiency that will equip them for future studies in this field.

Scheme of work

Term 1

Topic	Lesson objectives	PB pages	WB pages
1. Revision of counting and writing numbers up to 999	Pupils should be able to: <ul style="list-style-type: none"> count numbers up to 999 write numbers up to 999 state the place value of a digit in numbers up to 999 	1–14	1–7
2. Counting and writing numbers from 1 000–9 999	Pupils should be able to: <ul style="list-style-type: none"> write the numeral 1 000 count in thousands up to 9 000 identify the place value i.e. Th, H, T, U in numbers from 1 000–9 000 count in thousands (Th), Hundreds (H), Tens (T) and Units (U) 	15–20	8–9
3. Grouping numbers in thousands, hundreds, tens, and units (Th, H, T, U)	Pupils should be able to: <ul style="list-style-type: none"> state the place value of a digit in a 4-digit number e.g. $5\ 326 = 5\ 000 + 300 + 20 + 6$ 	21–30	10–15
4. Ordering whole numbers with symbol < and > i.e. < = Less than > = Greater than	Pupils should be able to: <ul style="list-style-type: none"> express inequalities of 2- or 3-digit numbers using the terms greater than or less than order given whole numbers 	31–33	16–18
5. Fractions of a group of objects and of shapes	Pupils should be able to: <ul style="list-style-type: none"> find the fraction of a group of concrete objects e.g. oranges, apples, grapes identify fractions of given shapes 	34–38	19–23
6. Equivalent fractions and ordering fractions	Pupils should be able to: <ul style="list-style-type: none"> write fractions which have the same value as a given fraction e.g. $\frac{1}{2} = \frac{3}{6}, \frac{5}{10} = \frac{1}{2}$ use the symbol (< or >) for ordering fractions e.g. $\frac{1}{4} < \frac{1}{2}, \frac{1}{2} > \frac{3}{5}$ 	39–43	24–25

Topic	Lesson objectives	PB pages	WB pages
7. Adding 3-digit numbers without exchanging or renaming	<p>Pupils should be able to:</p> <ul style="list-style-type: none"> • write 3-digit numerals in the expanded form e.g. $213 = 200 + 10 + 3$ • add pairs of 3-digit numerals without exchanging or renaming e.g. $234 = 200 + 30 + 4$ $+ 652 = 600 + 50 + 2$ $888 = 800 + 80 + 6$ 	44–48	26–29
8. Adding 3-digit numbers with exchanging or renaming	<p>Pupils should be able to:</p> <ul style="list-style-type: none"> • add 3-digit numbers with exchanging or renaming e.g. <ul style="list-style-type: none"> (i) 375 $+ \underline{426}$ 801 (ii) 514 $+ \underline{697}$ $1\ 211$ 	49–54	30–35
9. Adding 2- and 3-digit numbers using the partial sum method	<p>Pupils should be able to:</p> <ul style="list-style-type: none"> • add 2-digit numbers using the partial sum method with speed and accuracy e.g. $27 = 20 + 7$; $92 = 80 + 12$ • add 3-digit numbers using the partial sum method with speed and accuracy e.g. $284 + 519$ 284 $+ \underline{519}$ 803 13: $4 + 9$ 90: $80 + 10$ <u>700</u>: $200 + 500$ 803 	55–59	36–38
10. Subtracting 3-digit numbers without exchanging or renaming	<p>Pupils should be able to:</p> <ul style="list-style-type: none"> • perform subtraction of 3-digit numbers without renaming accurately and speedily e.g. $764 - 533$ $764 = 700 + 60 + 4$ $- \underline{533} = 500 + 30 + 3$ $231 = 200 + 30 + 1$ 	60–64	39–41

Topic	Lesson objectives	PB pages	WB pages
11. Subtract 3-digit numbers with exchanging or renaming	Pupils should be able to: <ul style="list-style-type: none"> Perform subtraction of 3-digit numbers with renaming accurately and speedily e.g. $485 - 329$ $485 = 400 + 70 + 15$ $- 329 = 300 + 20 + 9$ $156 = 100 + 50 + 6 = 156$ 	65–72	42–46
Revision of first term's work	Pupils should be able to recapitulate the first term's lesson and ask questions for clarification	73–78	47–51

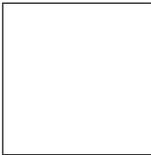
Term 2

Topic	Lesson objectives	PB pages	WB pages
1. Revision of first term's work	Pupils should be able to: <ul style="list-style-type: none"> recall some of the first term's lessons perfect the knowledge of counting and grouping of numbers acquire more skills on fractions 	79–83	52–61
2. Adding and subtracting of fractions with the same denominator	Pupils should be able to: <ul style="list-style-type: none"> add and subtract fractions with the same denominator e.g. $\frac{1}{2} + \frac{1}{2} = \frac{2}{2} = 1$ (ii) $\frac{3}{6} - \frac{2}{6} = \frac{3-2}{6} = \frac{1}{6}$ 	84–88	62–64
3. Multiplying 2-digit numbers by 1-digit numbers	Pupils should be able to: <ul style="list-style-type: none"> multiply from 1×1 to 9×9 (Multiplication Table) multiply 2-digit numbers e.g. $\begin{array}{r} 23 \\ \times 4 \\ \hline 92 \end{array}$ 	89–93	65–68

Topic	Lesson objectives	PB pages	WB pages
4. Multiplying three 1-digit numbers	<p>Pupils should be able to:</p> <ul style="list-style-type: none"> multiply three 1-digit numbers taking two at a time e.g. $= 3 \times 5 \times 4$ $3 \times 5 \times 4 = 60$ $= (3 \times 5) \times 4$ or $3 \times (5 \times 4)$ $= 15 \times 4 = 60$ $3 \times 20 = 60$ (ii) discover that 1 multiplied by any number is the number itself e.g. $1 \times 3 = 3, 1 \times 8 = 8$ (iii) multiplication of any number by zero is zero e.g. $0 \times 4 = 0, 7 \times 0 = 0$ 	94–98	69–71
5. The distributive rule of multiplication	<p>Pupils should be able to:</p> <ul style="list-style-type: none"> expand using distributive rule e.g. $2 \times (3 + 4)$ $= (2 \times 3) + (2 \times 4)$ $= 6 + 8 = 14$ 	99–103	72–73
6. Dividing whole numbers without remainders	<p>Pupils should be able to:</p> <ul style="list-style-type: none"> divide whole numbers not exceeding 48 with division of 2, 3, 4, 5 or 6 without remainders e.g. $48 \div 4 = (40 \div 4) + 4$ $= (40 \div 4) + (8 \div 4)$ $= 10 + 2 = 12$ 	104–113	74–77
7. Factors of whole numbers up to 48 Open sentences	<p>Pupils should be able to:</p> <ul style="list-style-type: none"> express whole numbers not exceeding 48 as a product of factors e.g. $30 = 2, 3, 5$ find a missing factor in a given number e.g. $30 = 2 \times 3 \times \square$ distinguish between factors and multiples e.g. $2 = 2, 4, 6, 8 \dots$ $4 = 4, 8, 16, 32 \dots$ 	114–137	78–87
8. Primary measures: Money	<p>Pupils should be able to:</p> <ul style="list-style-type: none"> change money not exceeding ₦20.00 into smaller units e.g. $\frac{1}{2}$k, 1k, 5k, 10k, 15k, 20k, 50k, 100k, etc. 	138–142	88–90
	<p>Pupils should be able to:</p> <ul style="list-style-type: none"> go shopping effectively with money greater than ₦20.00 using addition and subtraction 	143–147	91–93

Topic	Lesson objectives	PB pages	WB pages
	Pupils should be able to: <ul style="list-style-type: none"> • solve simple multiplication involving money with products not exceeding ₦20.00 	148–152	93–96
9. Primary measures: Length (1)	Pupils should be able to: <ul style="list-style-type: none"> • make meaningful estimates of the length and/or width of a room, table and straight edged objects • appreciate importance/benefits of standard units 	153–157	97–99
Revision of second term's work	Pupils will recapitulate the second term's lesson and ask questions for clarification	158–163	100–102

Term 3

Topic	Lesson objectives	PB pages	WB pages
1. Revision of second term's work	Pupils should be able to: <ul style="list-style-type: none"> • recapitulate the first and second term's lessons • recap every detail in multiplication and fractions • finding a way of changing money and multiplication of money 	164–168	103–105
2. Primary measures: Length (2)	Pupils should be able to: <ul style="list-style-type: none"> • measure regular objects in metres and centimetres • measure and find the perimeter of regular shapes in centimetres (cm) 	169–174	106–108
	Pupils should be able to: <ul style="list-style-type: none"> • find the area of squares and rectangles by counting square units e.g. <p>a)  3 cm 4 cm</p> <p>b)  3 cm 3 cm</p>	175–178	109–111

Topic	Lesson objectives	PB pages	WB pages
3. Primary measures: Time	Pupils should be able to: <ul style="list-style-type: none"> tell the time accordingly in hours and minutes read the conversion of time from minutes to hours and hours to minutes 	179–184	112–113
	Pupils should be able to: <ul style="list-style-type: none"> give dates indicating the day and month number of days in a week and weeks in a month 	185–190	114–116
4. Primary measures: Mass / Weight	Pupils should be able to: <ul style="list-style-type: none"> measure weights of objects in kilograms and grams make meaningful comparisons of weights of objects like rocks and stones, and measure in kilograms and grams 	191–195	117–118
5. Secondary measures: Capacity	Pupils should be able to: <ul style="list-style-type: none"> identify the litre as a unit for measuring capacity measure liquids e.g. measuring of water using a graduated cylinder 	196–200	119–121
6. Three-dimensional (3-D) shapes	Pupils should be able to: <ul style="list-style-type: none"> identify and classify given objects according to their shapes i.e. (a) cube (b) cuboid (c) cylinder (d) sphere identify and count the faces and corners/edges (of cubes and cuboids); curved surfaces of spheres and cylinders 	201–207	122–123
7. Symmetry	Pupils should be able to: <ul style="list-style-type: none"> define symmetry identify shapes with lines of symmetry state the properties of squares, rectangles, triangles 	208–212	124–126
	Pupils should be able to: <ul style="list-style-type: none"> distinguish between curved and straight lines draw lines of symmetry on squares, rectangles, triangles and circles 	213–216	127–129
8. Data collection: Pictograms and mode	Pupils should be able to: <ul style="list-style-type: none"> read and extract some information on pictograms identify that most common value of a pictogram (the mode) 	217–222	130–133
Revision of third term's work	Pupils will recapitulate the first and second term's lessons and ask question for clarification.	223–234	134–140

Topic 1 Revision of counting and writing numbers up to 999

Skills: counting, reading, matching, writing, recognising

Concepts: counting, numbers, number names

Vocabulary: number names up to 999

Resources: number charts, number line, counters, concrete objects (such as stones, beads, sticks and buttons), pencils, crayons, exercise books, paper

Learning experiences

In Topic 1, your pupils will count forwards and backwards in 1s, 2s, 5s, 10s, 20s and 25s up to 1 000. Regard these first few revision topics as a baseline to determine where the pupils are in terms of their counting skills; writing of numerals and number names; their understanding of numbers; their knowledge of the place value of numbers up to 999. This will enable you, the teacher, to see their level of understanding and identify any shortcomings, which could guide you with regards to future planning and interventions required. The ‘Lesson focus’ section below gives you step-by-step guidelines on how to teach the concepts covered in Topic 1.

Lesson focus

- Do counting exercises daily.
- Let the pupils count using concrete objects first, such as stones, buttons, sticks, beads and so on.
- Next, let them identify numbers on a number chart by counting from the number chart. They can use a counter whilst counting on their number charts. Also make use of a number line.
- Explain the instructions and examples to the pupils so that they understand what to do in each activity.
- Have the pupils work on their own so that you’ll have a clear baseline to monitor their level of understanding before even starting to teach the new concepts for this year.

Practice and consolidation

The eight exercises in the *Pupil's Book* and seven exercises in the *Workbook* in Topic 1 are set out for the week. These exercises cover all aspects of counting and will give your pupils plenty of practice in counting forwards and backwards in 1s, 2s, 5s, 10s, 20s and 25s up to 1 000. Explain the instructions and examples to your pupils so that they understand what to do in the following exercises:

Pupil's Book: Topic 1: Exercises 1–8

Workbook: Topic 1: Exercises 1–7

Topic 2 Counting and writing numbers from 1 000 to 9 999

Skills: counting, reading, matching, writing, recognising

Concepts: counting

Vocabulary: number names from 0–1 000, more, less, before, after, between

Resources: number charts, number lines, counters, concrete objects (such as stones, beads, sticks or buttons), number-name cards, numeral cards, exercise books, paper, pencils, crayons

Learning experiences

Let your pupils use concrete objects, number lines and number charts to count forwards and backwards from 1 000 to 9 999 in 1s, 2s, 5s, 10s, 20s, 25s, 50s and 100s. In this topic, give them plenty of opportunities to read and write numbers, both in numerals and words, from 1 000 to 9 999. Once they feel confident reading, counting and writing numbers in this number range, teach them to order numbers from smallest to biggest and biggest to smallest; write numbers that come before and after a given number; compare numbers and apply the concepts of 'more than' and 'less than' within this number range.

The 'Lesson focus' section that follows gives you step-by-step guidelines on how to teach the concepts covered in Topic 2.

Lesson focus

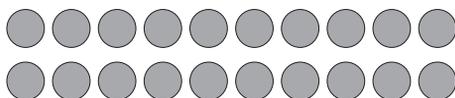
Counting

Do counting daily with the pupils as a whole class or with small groups on a mat. Use a variety of concrete objects and counters, such as buttons, sticks, stones, and so on. Vary the counting:

- Count concrete objects, for example, beads
- Count objects in a picture
- Count from counting charts and number lines, identifying the numbers
- Count forwards and backwards in ones
- Count forwards and backwards in tens
- Count forwards and backwards from a given number to a given number
- Count in multiples – skip counting
- Heap up counters and count them in groups, for example, in twos, threes, fours, fives and tens
- The important thing is that the pupils need to get as much practice in counting as they can.

Identifying numbers

- Use number cards, number charts and number lines for the pupils to identify specific numbers by pointing to them.
- Let the pupils identify numbers by matching numbers to quantities of objects:



20

- Also use number cards and number-name cards for the pupils to match one with the other.
- Use a pack of number-name and numeral cards with examples up to 1 000 (like the ones below). Let the pupils play, “Who has?”.

146 one hundred and forty-six

- Give each pupil either a numeral or number-name card. Each pupil gets a turn to ask, “Who has number (for example) 146?” They hold up the card and the pupil who has it says, “I have one hundred and forty-six” and holds up the card.

They continue in this way to match the numbers and number names. Give your pupils practice in reading and writing number-names and numbers up to 10 000.

- Your pupils must also understand how to compare numbers up to 10 000. Do lots of activities involving before, after, bigger, smaller, more than and less than.

Practice and consolidation

The five exercises in the *Pupil's Book* and two exercises in the *Workbook* in Topic 2 are set out for the week. These exercises will give your pupils plenty of practice in counting in 1s, 2s, 5s, 10s, 20s, 25s, 50s and 100s, reading numerals and number names, writing numerals and numbers names and comparing numbers. Explain the instructions and examples to your pupils so that they understand what to do in the following exercises:

Pupil's Book: Topic 2: Exercises 1–5

Workbook: Topic 2: Exercises 1–2

Topic 3 Grouping numbers in thousands, hundreds, tens and units

Skills: counting, recognising, explaining, identifying

Concept: place value

Vocabulary: thousands, hundreds, tens, units, building up, breaking down

Resources: number charts, number lines, counters, concrete objects, place-value cards (for 1 000s, 100s, 10s and 1s), Dienes blocks, 100–200 sticks, rubber bands, interlocking cubes, blocks, abaci, crayons, pencils, paper, exercise books

Learning experiences

In this topic, your pupils will work with place-value number cards to show the values of thousands, hundreds, tens and units. They will practise breaking up (expanding) numbers up to one thousand using their number cards, after which they will experience breaking up one number in at least six different ways.

Once they feel confident doing the above, they can advance to identifying single digits within a number, e.g. “What is the value

of the 8 in the number 783?” Then expand on that by asking: “What are the values of each digit in the number 694?” During your lessons, use group work, pair work and individual work while covering all the place-value concepts in this topic. The ‘Lesson focus’ section below gives you step-by-step guidelines on how to teach the concepts covered in Topic 3.

Lesson focus

- *Group work on a mat:* Ask the pupils to each take ten sticks. Explain that they are going to exchange their ten loose sticks for one whole ten. Show them how to tie a rubber band for one whole ten. Explain that they now have 1 ten. Show the number card 10 and point to the one (meaning one ten) and to the zero (meaning no or zero units). Ask the pupils to place the number card next to the bundle.
- *Pair work:* Ask each pair of pupils how many tens they have. Explain that two tens are equal to 20, meaning two tens and zero units. Show the number card 20. Let the pupils repeat the activity by having one pupil join each pair until the group has nine tens. Put down the number card each time.
- *Individual work:* Ask the pupils to choose any number between 10 and 99. Encourage them to think carefully about how many tens and how many units there are in the number they have chosen. Give them time to do this before asking individual pupils to explain their numbers.
- Tell the pupils to use the place value cards to help them; for example: $62 = \text{six tens and } 2 \text{ units}$ or $60 + 2$. Show the number cards 60 and 2 and put the 2 over the 0. Let them practise more with more numbers up to 99 in this activity.

$$6 \text{ tens} + 2 \text{ units} = 62$$

60	2	sixty-two
----	---	-----------

- Explain that the value of six tens is equal to 60, and the value of 2 units is equal to 2.
- Introduce the 100 card.
- Put the number card 99 on the board. Point to 99 on the number chart or number line and ask the pupils “What number is one more than 99?” 100 is one more than 99. Let them count from 90 to 100. Show them the 100 square (if you don’t have the Dienes blocks, make 100-squares on card or paper and cut them out). Let the pupils count the blocks. Ask: “How many units make up 100?”

One hundred units are equal to 100. Put out two hundred squares. Let them count from the 100 to the next number.

- Show them the tens bars and the loose unit blocks (these can also be made with card if there are no Dienes blocks) or use the bundles of sticks. Let them count the ten bars/bundles in tens, first up to 100, then up to 200. Ask: “How many tens are in 100? How many tens are in 200?”
- Ask each pupil to choose any number between 99 and 200 and to place it in front of them. Ask them to read their number out aloud. Encourage them to think carefully about how many hundreds, how many tens and how many units there are in the number they have chosen. Give them time to do this before asking individual pupils to explain their numbers.
- Tell the pupils to use the place value cards to help them; for example: $159 =$ one hundred, five tens and 9 units, or $100 + 50 + 9$. Show the number card 100 with 50 placed over the zeros of 100 and the 9 placed over the zero of 50. Let them practise with more numbers up to 200 in this activity.

100	50	9	159
100	10	9	one hundred and fifty-nine
	+	10	+
		10	
		10	
		10	

$$1 \text{ hundred} + 5 \text{ tens} + 9 \text{ units} = 159$$

- Explain that the value of one hundred is 100, and the value of 5 tens is 50 and the value of 9 units is 9.
- *Small group work:* Pupils sit in a small circle and each pupil has a turn to put out a number using the place-value cards, the sticks or the Dienes blocks. The pupil next to them must say the number and write out the number name. They continue in this way until everyone has had a turn or two.

Place value

Use place-value number cards, counting charts, counters, hundred-squares, ten bars, 100 single squares and a thousand-square. Paste these onto cards so that they are firmer for longer use.

- Divide the pupils into groups. Give each group 10 hundred-squares, 10 ten bars and 10 single squares.
- Ask the pupils to count the single squares and to say how many they have (they should say 10). Explain that they have 10 units. Tell them to exchange the units for 1 ten (they should replace the 10 units with 1 ten bar). Explain that 10 units equals one 10. Tell them to place the number card next to the symbol 10.
- Now ask the pupils to put out 2 ten bars and the matching number card. Repeat the activity until they've put out 10 ten bars and the number card 100. Explain that 10 tens equal 100. Let them count the tens in 10s, and then exchange the 10 tens for a hundred-square.
- Ask the pupils to put out 2 hundred-squares. Ask them how many single squares they have. Tell them to put the matching number card next to the squares. Continue in this way until the pupils have put out 10 hundred-squares and the number card 1 000. Explain that 10 hundreds equal 1 000. Let them count the squares in hundreds, and then exchange the 10 hundreds for a thousand-square. Place the 10 hundred-squares on top of one another. Point out that if you count all the single squares, you will get 1 000.
- Let the pupils count all the squares to gain an understanding of the size of 1 000. Also let them count the hundreds in hundreds to 1 000.
- Divide the pupils into pairs. One pupil uses number-symbol cards to make a number by placing the cards over each other. The same pupil then asks their partner to lay out the numbers using the squares (for example, the pupil will put out 4 hundred-squares, 5 ten bars and 6 units). The pupils swap roles so each pupil has a turn to lay out the number cards and the squares.
- Note: Remember that the number cards can be packed out in different ways. Pupils can find a way that works best for them.

Building up and breaking down numbers

Use number charts, tape measures, wax crayons, koki pens, newsprint, pencils, books and paper. Ensure you teach the vocabulary ‘building up’ and ‘breaking down’.

- Write a three-digit number on the board, for example, 468. Ask the pupils to suggest other ways of writing the same number. Record their ideas on the board. They may look like this:

four hundred and sixty-eight

$$460 + 8$$

$$400 + 60 + 8$$

$$408 + 60$$

$$200 + 200 + 60 + 8$$

$$300 + 100 + 68$$

$$300 + 168$$

$$150 + 250 + 60 + 8$$

$$100 \times 4 + 68$$

$$500 - 100 + 68$$

- Divide the pupils into pairs. Give each pair a sheet of paper and a wax crayon or koki pen.
- Ask the pupils to choose a three-digit number and to write it down on their paper.
- Explain to the pupils that you want them to break down the number and write it in as many ways as they can, as they did with you on the board. Let them break down more than one number if there is enough time.
- Give them an opportunity to explain to the class what they did. Display their sheets in the classroom.
- Get the pupils to do calculations by breaking down numbers, using their own methods. Firstly, do an example with them, such as the one below. The pupils could solve this calculation in various ways, but emphasise that they must use their own methods.

$$348 + 135$$

$$340 + 130 = 470$$

$$8 + 5 = 13$$

$$470 + 13 = 483$$

- Get the pupils to practise all four operations. Ask them to explain to a partner, to you or to the whole class how they reached their solutions. Ask them to check their answers and a friend's answers.
- Ensure that your pupils are able to recognise and write the value of any digit within a number, for example, the value of the 8 in 483 is 80. If any of your pupils have difficulty with this concept, revert back to using place-value cards to explain it carefully to them.
- They also need to be able to read and write numbers from a counting frame (see page 29 in the *Pupil's Book*).

Practice and consolidation

The ten exercises in the *Pupil's Book* and six exercises in the *Workbook* in Topic 3 are set out for the week. These exercises will give your pupils plenty of practice in place value; expanding, building up and breaking down numbers in units, tens, hundreds and thousands; notation of number values and addition of number values. Explain the instructions and examples to your pupils so that they understand what to do in the following exercises:

Pupil's Book: Topic 3: Exercises 1–10

Workbook: Topic 3: Exercises 1–6

Topic 4 Ordering whole numbers using the < and > symbols

Skills: ordering/arranging, recognising, sequencing, identifying, reading, comparing

Concepts: ordering, comparing, sequencing, greater than, less than, more than, bigger, smaller, highest, lowest

Vocabulary: order/arrange, sequence, compare, greater than, less than, more than, bigger, smaller, highest, lowest, ordinals, descending, ascending, before, after, between, smallest, biggest, smallest to biggest, biggest to smallest, equal to

Resources: number charts and number lines, number cards in the number ranges required for the topic, number-name cards, greater-than and less-than symbol cards, before and after cards, more and less cards, crayons, pencils, paper, exercise books

Learning experiences

The aim of the exercises in Topic 4 is to give your pupils plenty of opportunities to practise ordering and comparing numbers up to 1 000. The ‘Lesson focus’ section below gives you step-by-step guidelines on how to teach the concepts covered in Topic 4.

Lesson focus

In order for the pupils to place numbers in any **sequence**, they must understand the concepts: **more than/greater than, less than, before, after** and **between**. Create four groups of four pupils to work in four different work areas.

Work area 1

- Prepare a set of **greater than** and **less than** symbol cards, a set of number cards and a set of number-name cards for this work area.
- Place each set of cards face down in this order: number cards then number name cards.
- The pupils take turns to choose a card from each set, read it aloud and state if it is true or false, for example:

145

<

eighty

(false).

Work area 2

- Prepare a set of **before** and **after** cards, a set of number cards (with order range of, for example, 320 to 340), a set of number cards, and sheets of paper with **before, after** and **between** written on them.
- Place the cards face down in their sets.
- The pupils take turns to choose a card from each set and place them in the correct column on the before and after sheets.
- Let the pupils move the cards around until they have the correct answer.

Work area 3

- Prepare a set of number cards and each of the following instruction cards:
- Arrange from the biggest to the smallest
- Arrange from the highest to the lowest (descending order)
- Arrange from the smallest to the biggest

- Arrange from the lowest to the highest (ascending order)
- The group chooses one instruction card at a time and arranges the numbers accordingly.
- They repeat the activity for all the instruction cards.

Work area 4

- Prepare a set of **more** or **less** cards (i.e. 10 more, 20 more, 50 more, 100 less, 40 less, 30 less), a set of number cards and a sheet of paper to write on.
- The pupils choose a number card and a **more** and **less** card. They write their answers on the sheet of paper provided.
- The group discusses the answers and passes the sheet to the next pupil to write their answers.
- The pupils continue until all the number cards have been collected and answered.

Organization

- Allow each group about 15 minutes to work at each work area.
- Give each group a turn at all the work areas.
- Move around the groups to give guidance and support and encouragement where necessary.
- The remainder of the class do activities from the *Pupil's Book* and *Workbook* until it's their turn.
- Make sure that each pupil has a turn at each work area.

Using symbols $>$, $<$ and $=$ to order numbers

- Have flash cards with the following symbols on them:

$>$	$<$	$=$
-----	-----	-----

- Explain the name and meaning of each symbol by using examples; e.g. $99 < 100$.
- Have the pupils work in small groups of six and give each group a set of cards with equations on them.
- Each pupil gets a turn to take a card and give the answer: true or false; for example:

$25 > 30$	$73 < 6 + 6$	$61 > 60$
-----------	--------------	-----------

$\text{fifty-one} > 40 + 40$	$5 + 4 = 8 + 1$
------------------------------	-----------------

- The activities in the *Pupil's Book* and *Workbook* are set out for the week. Explain the instructions and examples to the pupils so that they understand what to do in each activity.

Describe, compare and order numbers

- Set up some working areas before the lesson. You could use tables or small mats, depending on your classroom. Give each group 10–15 minutes to work at one of the worktables you have prepared. Give each group the chance to work at all the tables.
- Facilitate the groups while they are busy at the work areas.
- Tell the pupils that they will swap around at the end of the activity, so everyone will have a turn to work in groups at each work area.
- The rest of the class can work on activities and exercises in the *Workbook*.

Worktable 1

- Prepare a set of **before** and **after** cards, a set of number cards from an ordered range (for example, from 540 to 560), a set of name cards and some **before** and **after** sheets.
- Place all the cards face down on the table. Pupils take turns to pick up one card from each pile, and place the cards in the appropriate columns on their **before** or **after** sheets. The answers must be correct. The pupils are allowed to move cards around their sheets until they have the correct answers.

Worktable 2

- Prepare a different set of number cards and cards with these instructions:
 - Arrange your number cards from the biggest to the smallest.
 - Arrange your number cards from the lowest to the highest.
 - Arrange the number cards from the smallest to the biggest.
 - Arrange the number cards from the highest to the lowest.
- The group chooses one instruction and arranges all the number cards according to that instruction. Then they choose another instruction and carry it out. They do this until they have completed all the instructions.

Worktable 3

- Prepare a different set of **more** or **less** cards (for example, 30 more, 40 more, 200 more, 100 less, 20 less, 50 less), a set of **number-symbol** cards and prepared sheets to write on.
- Pupils take turns to choose one card from each pile. They write down the number from the number-symbol card first, and then the more or less symbol, depending on which card they pick up. They fill in the correct answer on the sheet and pass it on to the next pupil. The group continues until their time at the work area is over.

Practice and consolidation

The three exercises in the *Pupil's Book* and three exercises in the *Workbook* in Topic 4 are set out for the week. These exercises will give your pupils plenty of practice in ordering and comparing numbers up to 1 000. Explain the instructions and examples to your pupils so that they understand what to do in the following exercises:

Pupil's Book: Topic 4: Exercises 1–3

Workbook: Topic 4: Exercises 1–3

Topics 5 & 6 Fractions of a group of objects and of shapes; equivalent fractions and ordering fractions

Skills: sharing, counting, recognising, problem-solving, explaining, communicating, labelling, identifying, drawing, writing, shading

Concepts: fraction, half, one-quarter, three-quarters, halves, quarters, thirds, greater than, less than, equal to

Vocabulary: whole, half, quarter, third, fifth, sixth, eighth, equal parts, share, divide, fraction

Resources: flashcards (for example, $\frac{1}{2}$, $\frac{1}{3}$ and $\frac{1}{4}$), fraction cards (for example, $\frac{1}{2}$ of 24 and $\frac{1}{3}$ of 27), number lines, counters; strips of paper, scissors, book, pencils, concrete objects (like bottle tops, sticks, buttons, beads, seeds), counters, number lines, crayons, a sheet of paper, exercise books

Learning experiences

In these two topics, give your pupils hands-on experience in sharing/dividing/breaking up objects, shapes and number lines into equal parts called fractions. By the end of Topics 5 and 6, make sure that they have a good understanding of half, third, and quarter.

Ensure your pupils also get plenty of practice in drawing and shading fractions, identifying fractions, writing and comparing fractions, and working out fractions of a whole number. The ‘Lesson focus’ section below gives you step-by-step guidelines on how to teach the concepts covered in Topics 5 and 6.

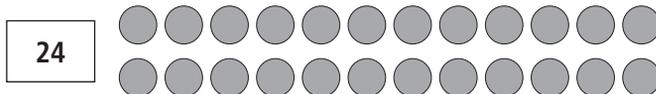
Lesson focus

- Give each pupil two sheets of paper. Ask them to fold one sheet of paper in **half** so they have two **equal** parts, and then ask them to tear or cut the paper on the fold. Ask the pupils how many equal parts they have and what each part is called. Explain that each part is called a half. Show a flashcard of the fraction symbol $\frac{1}{2}$ and the words ‘one half’. Point to the symbol and explain that the 1 means one equal part of the whole. The 2 shows that two equal parts make up the **whole**. Ask the pupils to write $\frac{1}{2}$ on each equal part.
- Repeat the activity with the other piece of paper, but this time ask the pupils to fold the paper in half, and then in half again. Ask them how many equal parts they have and what each part is called (**quarter**). They then write the fraction $\frac{1}{4}$ on each equal part.
- Give each pupil a strip of paper. Ask them to fold it into three equal parts, and then tear or cut the paper along the folds. Explain that each part is called a third. Show flashcard of the fraction symbol $\frac{1}{3}$ and the number word for one-third. Point to the symbol and explain that the 1 means one equal part of the whole. The 3 shows that three equal parts make up the whole. Ask the pupils to write $\frac{1}{3}$ on each equal part.
- Get the pupils to compare the fractions $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{3}$.
- Ask them which is biggest and which is smallest. Ask them to put their parts together again to make whole numbers.

- Divide different shapes (circles, squares, rectangles, etc.) into various different equal parts by shading in, for example, fifths, eighths, etc. Consolidate this with the activities on pages 36 and 37 of the *Pupil's Book*.
- Using the number lines on page 38 of the *Pupil's Book*, teach your pupils how to compare fractions using the symbols for 'greater than' and 'less than'.
- Now give the pupils a problem such as: You have 15 sweets and give each of three friends $\frac{1}{3}$ of your sweets. How many sweets does each friend get?
- Let the pupils use counters to solve the problem if they need to. Encourage them to explain how they worked out their answers. They need to understand that when they have $\frac{1}{3}$ of a number, they should share into three or divide by three because there are three equal parts in the whole.
- Divide the pupils into small groups. Give each group a container with counters and a set of fraction cards. Ask them to work out the answers by dividing the counters into the fractions shown on the cards. Pupils take turns to divide the counters.

Fractions: $\frac{1}{2}$ and $\frac{1}{4}$ of a given collection

- First, quickly revise their understanding of a whole, a half and a quarter using concrete objects.
- Have the pupils work in pairs. Each pair will use a number of concrete objects or counters. Give each pair a number card and ask them to count out the number of counters or objects as is indicated on their number card, for example:



- Ask the pairs respectively to divide their objects or counters into halves or quarters.
- Let them explain to each other how/what they did and what their answer is.
- Then show them how to write their number sentence and their answer.

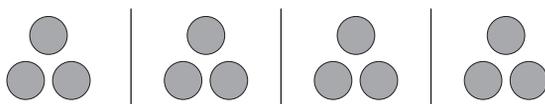
$$\frac{1}{2} \text{ of } 24 = \square$$

$$\frac{1}{4} \text{ of } 24 = \square$$

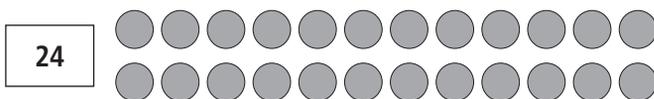
- Next give them a new number or let them swap numbers and they respectively find halves and/or quarters of those numbers. They again communicate to their peers how they got to their answers.
- Ask them to draw the pictures and write out their sums as shown in the examples above.
- Ask a few pupils to read their sums out loud.

Fractions: of a given collection

- First, revise halves and quarters of collections using concrete objects as was taught in the previous lesson.
- Ask the pupils to count out 12 counters or objects and to divide them into quarters. Ask: “How many are in each quarter?” We will have 3 counters in each quarter. 3 counters make up one equal part out of 4 equal parts of the whole amount.



- Now explain that $\frac{1}{4}$ of 12 = 3, and if we add another $\frac{1}{4}$ it will be 6, and if we add another $\frac{1}{4}$ it will be 9; therefore, $\frac{3}{4}$ of 12 = 9. It means that $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4}$; meaning $3 + 3 + 3 = 9$.
- Have the pupils work in pairs. Each pair will use a number of concrete objects or counters. Give each pair a number card and ask them to count out the number of counters or objects as is indicated on their number card; for example:



- Ask the pairs respectively to divide their objects or counters into quarters.
- Let them explain to each other how/what they did and what their answer is.
- Then show them how to write their number sentence and their answer.

$\frac{3}{4}$ of 24 = 18

- Next, give them a new number or let them swap numbers and they respectively find three-quarters ($\frac{3}{4}$) of those numbers. They again communicate to their peers how they got to their answers.
- Ask them to draw the pictures and write out their sums as shown in the examples above.
- Ask a few pupils to read their sums out loud.

Practice and consolidation

The five exercises in the *Pupil's Book* and five exercises in the *Workbook* in Topic 5, as well as the three exercises in the *Pupil's Book* and two exercises in the *Workbook* in Topic 6 are set out for the week. These exercises will give your pupils plenty of practice in drawing and shading fractions; identifying fractions; writing and comparing fractions; and working out fractions of a whole number. Explain the instructions and examples to your pupils so that they understand what to do in the following exercises:

Pupil's Book: Topic 5: Exercises 1–5

Workbook: Topic 5: Exercises 1–5

Pupil's Book: Topic 6: Exercises 1–3

Workbook: Topic 6: Exercises 1–2

Topics 7–11 Adding and subtracting 2- and 3-digit numbers without and with renaming

Skills: adding, adding on, counting on, counting forwards, counting backwards, taking away, problem solving, reading, explaining, calculating

Concepts: addition, subtraction

Vocabulary: add, subtract, count on, forwards, backwards, take away, left, right, smaller, bigger, carry over, borrow, fetch, addition, sum of, minus, more, less, subtraction, difference, tens, units, break down, altogether, total, vertical, horizontal

Resources: number charts, number lines, place-value cards, flash cards, pencils, crayons, exercise book, concrete objects (like bottle tops, sticks, buttons, beads, seeds and counters)

Learning experiences

During the next five to six weeks in Topics 7–11, you will teach your pupils how to add and subtract three-digit numbers using various methods. Start simply by showing the concepts of addition and subtraction on number lines in different number ranges. Then remind them how to add and subtract using place value (hundreds, tens and units) and expanded notation, where no renaming or exchanging is involved.

Once they feel confident with this, progress to teaching them vertical (in columns) addition and subtraction with each digit positioned in the hundreds, tens or units columns underneath each other. Again do not introduce renaming or exchanging at this point.

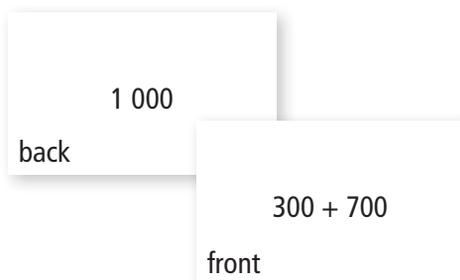
When your pupils are confident, teach them to add and subtract vertically using renaming and exchanging (carrying and borrowing/fetching 10s and 100s). Ask your pupils to look at the examples in the *Pupil's Book* on pages 44–59 for addition, and on pages 60–72 for subtraction.

Now you can teach them the partial sum method and then the breaking-up method. Once they know all the methods, encourage them to choose their own methods. The ‘Lesson focus’ section below gives you step-by-step guidelines on how to teach the concepts covered in Topics 7–11.

Lesson focus

Mental addition

- Divide the pupils into pairs. Give each pair a set of cards with sums up to 1 000, for example:



- Ask the pupils to shuffle the cards. One pupil in each pair then takes a card and shows it to a partner. The partner works out the answer mentally. If the partner answers correctly, the card goes back into the deck and if they answer incorrectly the pupil keeps the card.
- Pupils take turns to show a card and work out the answer. At the end of the game all pupils take the cards they answered incorrectly and work out the correct answers using counters and objects. Ask them to draw and write out the sums.
- Divide the pupils into groups of four and give each group two or three dice. (You could use wooden blocks to make your own dice and write the numbers using a koki pen.)
- Ask the pupils to take turns to throw the dice and add the numbers. The pupils throwing the dice should work out the answer in their heads. The other three pupils check to confirm if the answer is correct. If the answer is incorrect, another pupil in the group can answer.
- The pupils remain in their groups. Give each pupil five blank cards. Ask them to write a double-digit number in denominations of ten on each card. They then place all the cards face down in the middle of their group. The pupils then take turns to pick up any two cards.

- The pupil who picks up the cards adds the two numbers mentally. If the answer is correct they keep the cards and if the answer is incorrect another pupil in the group can give the correct answer and keep the cards. At the end of the game the pupil with the most cards wins.
- Tell the pupils to put the first set of cards aside.
- Give the groups of pupils a new set of blank cards on which they write a three-digit number in denominations of hundreds. Again the pupils shuffle the cards, place them face down and start a new game.
- Tell the pupils to put the second set of cards aside.
- Hand out a third set of blank cards on which the pupils write a four-digit number in denominations of thousands. Again the pupils shuffle the cards, place them face down and start a new game.
- Give the pupils lots of practice with adding small numbers before going on to bigger numbers. Allow them to use scrap paper to work out their answers. Also encourage them to use place-value cards, for example:

$$80 + 10 = 90$$

$$800 + 10 = 810$$

$$400 + 30 = 430$$

$$4\ 000 + 300 = 4\ 300$$

Written addition

- First, do a variety of counting exercises as was described in the earlier topics on counting.
- Next, do a quick mental activity to revise bonds using flash cards. Quickly show the flash card, the pupil silently reads the sum on the card and gives the answer out loud.
- Your pupils need to understand that we can add numbers in different ways. They need to be able to break down numbers into tens and units, e.g. 52 is 50 and 2, and 21 is 20 and 1. Show them how to write it out on the board as you say it.
 $52 + 21 = \square$
 $52 = 50 + 2$
 $21 = 20 + 1$
- If we add them together, it will be: $70 + 3 = 73$
- They also need to understand that we can add numbers in a vertical way or a horizontal way.

Vertical addition (in columns)	Horizontal addition (breaking down the numbers)
T U	34 + 25
3 4	30 + 20 = 50
+ 2 5	4 + 5 = 9
<hr style="width: 50%; margin: 0 auto;"/> = 5 9	<hr style="width: 50%; margin: 0 auto;"/> 50 + 9 = 59

- We can also add by expanding numbers and by using place value.

3 tens + 4 units	30 + 4
+ 4 tens + 5 units	40 + 5
<hr style="width: 50%; margin: 0 auto;"/> = 7 tens + 9 units = 79	<hr style="width: 50%; margin: 0 auto;"/> 70 + 9 = 79

Adding 3-digit numbers without exchanging or renaming

Follow the same process as for the previous addition and subtraction exercises during place-value work in Topic 3. In these exercises, the numbers are just larger, but the concepts are the same. Demonstrate vertical and horizontal addition and subtraction using the break down method into hundreds, tens and units, as well as using place value. Demonstrate some examples on the board using 3-digit numbers, e.g.:

324 + 265	H T U	324 + 265
3h + 2t + 4u	3 2 4	300 + 200 = 500
+ 2h + 6t + 5u	+ 2 6 5	20 + 60 = 80
<hr style="width: 50%; margin: 0 auto;"/> = 5h + 8t + 9u	<hr style="width: 50%; margin: 0 auto;"/> = 5 8 9	4 + 5 = 9
		500 + 80 + 9 = <u>589</u>

Adding 3-digit numbers with exchanging or renaming

Note: Remember to only introduce this method once pupils have a solid number concept.

- Remind pupils of the activities involving carrying over that they did in Primary 2. Revise a few examples on the board.
- Start with tens and then progress to one hundreds.

- When you are satisfied that your pupils are confident with the subtraction concept, progress to larger numbers.
- Write this sum on the board for the class to see. Write the number sentence as:



$$20 - 8 = 12$$

- This is very helpful for revising work done in Primary 1 and 2.

Subtracting 3-digit numbers without exchanging or renaming

- Write a simple horizontal number sentence on the board. For example:

$$52 - 10 = \square$$

- Ask the pupils to read the number sentence aloud. Ask them how many tens and how many units in each number. Below the headings Tens and Units, write the numbers from the number sentence, one below the other, for example:

	Tens	Units
	5	2
–	1	0
	—————	
	—————	

- Fill in the subtraction sign ‘–’ and explain that it goes into the same place as the addition sign ‘+’.
- Explain that as we did in addition sums, we start with the units and proceed to the tens. Explain that if we take away 0 from 2 we will have 2, and if we take away 1 from 5 we are left with 4.

	Tens	Units
	5	2
–	1	0
	—————	
	4	2
	—————	

- Do a few more simple examples on the board. Make sure that the values you subtract are always less, for example:
- $25 - 13$; $14 - 3$ and $33 - 12$.

- Remind the pupils that single-digit numbers go under the units. As you continue the sums, let the pupils do them. Remind the pupils that this is revision of Primary 2 work.
- Once the pupils have had enough practice, introduce hundreds in subtraction. Write this on the board.

	Hundreds	Tens	Units
	1	2	9
–		2	8

- Explain that 8 subtracted from 9 gives you 1.

	H	T	U
	1	2	9
–		2	8
			1

- Explain that 20 subtracted from 20 gives you zero.

	H	T	U
	1	2	9
–		2	8
		0	1

- Explain that zero taken away from 100 gives you 100.

	H	T	U
	1	2	9
–		2	8
	1	0	1

- Do a few more simple sums on the board. Always make sure that the values you subtract are less, for example: $487 - 213$; $905 - 804$ and $678 - 123$.
- Remind the pupils that they must write single-digit numbers under the units. As you continue with the sums, encourage the pupils to do the sums on their own. Do all the examples on the board for the pupils to copy into the exercise books. Get them to ask their partners to confirm that they have copied the sums correctly from the board.

Subtracting 3-digit numbers with exchanging or renaming

- Explain that in subtraction, if the unit's value that you are subtracting is greater than the one you are subtracting from, you fetch ten units (or one ten) from the tens column. (This is similar to adding ones that are greater than 9, when we carry over to the tens column.).

For example:

$$\begin{array}{r} \text{Tens Units} \\ 4 \quad 2 \\ - 2 \quad 9 \\ \hline 1 \quad 3 \end{array}$$

- Explain that we cannot subtract 9 from 2, but if we fetch 10 from the 4 Tens, we can subtract 9 from twelve. Remind the pupils that because we took away 1 ten from the 4 tens, we have 3 tens left.

$$\begin{array}{r} \text{Tens Units} \\ 3 \quad 12 \\ - 2 \quad 9 \\ \hline 1 \quad 3 \end{array}$$

- Do a few more sums on the board and ask the pupils to give answers. Guide and help as necessary.
- Once you think the pupils have had enough practice, introduce hundreds in subtraction. Write this sum on the board:

$$\begin{array}{r} \text{Hundreds Tens Units} \\ 1 \quad 2 \quad 2 \\ - \quad \quad 2 \quad 9 \\ \hline \hline \end{array}$$

- Explain that we cannot subtract 9 from 2, but if we fetch ten from the two tens, then we can subtract 9 from 12. Remind the pupils that because we took away one ten from the two tens, we have one ten left.

	Hundreds	Tens	Units
	0	¹ 1	¹ 2
–		2	9
			3

- Explain that we cannot subtract 20 from 10, but if we fetch 100 from the hundreds column, then we can subtract 20 from 110. Remind the pupils that because we took away one hundred from the 100, there are now 0 hundreds left.

	Hundreds	Tens	Units
	0	¹ 1	¹ 2
–		2	9
		9	3

- Write a few more sums on the board. Ask the pupils to work in pairs to work them out. Circulate among the pairs, helping and guiding where necessary.
- Give the pupils who are struggling with the concept more sums to reinforce the concept. These pupils should work in small groups.

Solving subtraction problems (story sums)

- At first the pupils will need help reading, understanding and interpreting word sums.
- Follow these steps to help them:
 - Write out a word problem on the board or on a chart.
 - Choose specific vocabulary, for example, many, left, sold, ate, picked, and then make flashcards for these.
 - Display the flashcards where all the pupils can see them. Ask the pupils to read them aloud. Constantly add words when necessary.
 - Use these words to make up additional word problems.
 - Encourage pupils to write their own word problems using these words as a guide.
 - Let them read and solve each other's word problems.
 - Problem-solving is a process skill. Give the pupils sufficient time to solve problems and develop this skill.
- Here is an example. Write this problem on the board or chart and read it aloud:
- Vuyo has 224 marbles. He sells 36 to Ben. How many marbles does Vuyo have left?

- Write the sum on the board using the Hundreds, Tens and Units columns.

	Hundreds	Tens	Units
	2	2	4
–		3	6

- Let the pupils give their solutions, but guide them by using carrying over/borrowing/fetching to find the correct answer.

Practice and consolidation

For Topics 7–11, the exercises are set out for each week in the *Pupil's Book*. These concepts can be further consolidated by asking your pupils to complete all the exercises for Topics 7–11 in the *Workbook*, where they will get plenty of practice doing addition and subtraction calculations using 3-digit numbers. Explain the instructions and examples to your pupils so that they understand what to do in the following exercises and exercises:

Pupil's Book: Topics 7: Exercises 1–5; Topic 8: Exercises 1–5; Topic 9: Exercises 1–5; Topic 10: Exercises 1–4; Topic 11: Exercises 1–7
Workbook: Topic 7: Exercises 1–4; Topic 8: Exercises 1–6; Topic 9: Exercises 1–3; Topic 10: Exercises 1–3; Topic 11: Exercises 1–5

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Revision

Let your pupils work on their own to complete the exercises.

Explain the instructions so that your pupils understand what to do.

The exercises will revise and consolidate the work done throughout the first term.

Give the pupils enough practice by doing:

Pupil's Book: Revision Term 1: Revision exercises 1–6

Workbook: Revision Term 1: Revision exercises 1–5

Revision of the first term's work

Term 2

Topic 1 Revision

These exercises are to evaluate the pupils' understanding of the various skills and concepts that were taught in Term 1.

The pupils work on their own to complete the exercises. Ensure that they understand the instructions beforehand.

Pupil's Book: Topic 1: Revision exercises 1–5

Workbook: Revision exercises 1–9

Topic 2 Adding and subtracting fractions with the same denominator

Skills: identifying, calculating

Concepts: addition and subtraction of fractions

Vocabulary: fractions, numerator, denominator, same, whole, add, subtract

Resources: number charts, counters, concrete objects (such as an orange, sticks, bottle tops and buttons), crayons, pencils, paper, exercise books

Learning experiences

Topic 2 focuses on adding and subtracting fractions that have the same denominator. The ‘Lesson focus’ section below gives you step-by-step guidelines on how to teach the concepts covered in Topic 2.

Lesson focus

- By now your pupils should be able to identify halves, quarters, thirds, fifths, tenths and so on.
- Cut an orange in half and ask how many halves there are. Then cut each half in half again and ask the pupils how many equal parts there are and what fraction each part is.
- Next take the quarters apart and tell the pupils that we can add fractions. We can say:
 $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4}$ (show this with the cut orange pieces). Do a few more examples with counters and beads.
- Explain that we can also subtract fractions in the same way. Demonstrate with the cut orange: $\frac{3}{4} - \frac{1}{4} = 2$ quarters. Do a few more examples with beads, bottle tops, buttons or counters.

- Tell the pupils that we can write these as sums and then write the sums on the board; for example:
 $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4}$ and $\frac{3}{4} - \frac{1}{4} = \frac{2}{4}$ and so on.
- Then explain what the **numerator** is and what the **denominator** is. Explain that the numerator is the **top** number of a fraction and the denominator is the **bottom** number of a fraction.
- Next, explain that when we add or subtract fractions with the same denominator, we only add or subtract the numerators, while the denominator remains the same. Show a few more examples on the board.
- Let your pupils practise by having them do a few examples on their own and then by checking each other's answers.

Calculating fraction word sums

- Write a word sum on the board and let the pupils read it out aloud, for example:
 You have 8 pencils but you give $\frac{3}{8}$ of the pencils to a friend. What fraction of the pencils do you have left?
- You need to make sure that your pupils understand what is being asked, how they will know what fraction they are working with, and whether they have to add or subtract the fractions. They also need to know that a whole can be any number over itself; e.g. $\frac{4}{4} = 1$ and $\frac{8}{8} = 1$.
- Give the pupils support and encouragement in finding the solution and how to get to the solution.

Practice and consolidation

The five exercises in the *Pupil's Book* and three exercises in the *Workbook* in Topic 2 are set out for the week. These exercises will give your pupils plenty of practice in adding and subtracting fractions that have the same denominator. Explain the instructions and examples to your pupils so that they understand what to do in the following exercises:

Pupil's Book: Topic 2: Exercises 1–5

Workbook: Topic 2: Exercises 1–3

Topic 3 Multiplying 2-digit numbers by 1-digit numbers

Skills: calculating, problem solving

Concept: multiplication

Vocabulary: times, multiply, vertical, horizontal, break down, product, hundreds, tens, units

Resources: number chart, counters, concrete objects (such as sticks, bottle tops and buttons), boards, crayons, pencils, paper, exercise books

Learning experiences

Topic 3 exposes your pupils to vertical and horizontal multiplication of 2-digit numbers by a 1-digit number. The ‘Lesson focus’ section below gives you step-by-step guidelines on how to teach the concepts covered in Topic 3.

Lesson focus

- First, do counting activities in multiples of 2, 3, 4, 5, 6, 7, 8 and 9.
- Do quick mental calculations within the tables of 2, 3, 4, 5, 6, 7, 8 and 9. The pupils should be getting used to the multiplication tables and getting to know them. These need to be consolidated and practised on a regular basis.
- Write a number sentence on the board; e.g. $28 \times 2 = \square$
- Then explain that they will be working out the sum by breaking down the numbers. Explain that 28 is a two-digit number, so each digit must be multiplied by 2. Then continue to demonstrate it by doing the calculation and explaining it to the pupils.

T U

2 8 Explain that 8 units $\times 2 = 16$. We cannot write 16 under the units, only 6. The 1 ten is written under the Tens.

$\times 2$ Explain that 2 tens (20) $\times 2 = 40$ plus 1 ten = 50.

5 6 (50 + 6)

- Demonstrate a few more examples on the board.
- Let the pupils practise a few examples on their own and thereafter check their answers with their peers.
- Explain the term **product** – it is the answer to a multiplication sum where two numbers are multiplied; for example: “Find the product of 7 and 3.” The product is 21 ($7 \times 3 = 21$).

Calculating multiplication word sums

- Write a word sum on the board and let the pupils read it out aloud, for example:
You have 9 packets with 4 mangoes in each packet. How many mangoes do you have?
- You need to make sure the pupils understand what is being asked and how they will know what operation to use.
- Guide the pupils into finding the solution.

Practice and consolidation

The five exercises in the *Pupil's Book* and four exercises in the *Workbook* in Topic 3 are set out for the week. These exercises will give your pupils plenty of practice in vertical and horizontal multiplication of 2-digit numbers by a 1-digit number. Explain the instructions and examples to your pupils so that they understand what to do in the following exercises:

Pupil's Book: Topic 3: Exercises 1–5

Workbook: Topic 3: Exercises 1–4

Topic 4 Multiplying three 1-digit numbers

Skills: calculating, problem solving

Concept: multiplication

Vocabulary: times, multiply, vertical, horizontal, break down, product, brackets

Resources: number charts, counters, concrete objects (such as sticks, bottle tops and buttons), boards, crayons, pencils, paper, exercise books

Learning experiences

In this topic, teach your pupils to multiply three 1-digit numbers, with and without using brackets. Also teach them the rules of multiplying by 1 and multiplying by zero. The ‘Lesson focus’ section below gives you step-by-step guidelines on how to teach the concepts covered in Topic 4.

Lesson focus

- First, do counting activities in multiples of 2, 3, 4, 5, 6, 7, 8, 9 and 10.
- Do quick mental calculations within the tables of 2, 3, 4, 5, 6, 7, 8, 9 and 10. The pupils should be getting used to the multiplication tables and getting to know them. They need to be consolidated and practised on a regular basis.
- Next, write a sum on the board; for example: $4 \times 2 \times 3 = \square$
- Explain that we first multiply two numbers, then multiply the product (answer) with the next number; for example:
 $(4 \times 2) \times 3$
 $8 \times 3 = 24$
- Explain the use of **brackets** to show how we always multiply the numbers in brackets **first**.
- Next, explain that it does not matter which number you start with, the answer will still be the same; for example:
 $4 \times 2 \times 3$
 $4 \times (2 \times 3)$
 $4 \times 6 = 24$
- Let your pupils practise a few examples and allow them to check each other’s answers. Let them also explain to each other what they did to get to their answer. In this way, peers can help each other in their understanding of these concepts. Children learn quite easily from their peers.

Multiplying by 1 and by zero

- Teach your pupils the rule that any number multiplied by 1 remains the same number.
 $1 \times 3 = 3$
 $3 \times 1 = 3$
- Also teach them the rule that any number multiplied by 0 remains 0.
 $0 \times 2 = 0$
 $2 \times 0 = 0$

Problem solving (story sums)

Write a problem sum on the board, for example:

- There are 10 pencil bags with 4 orange pencils and 6 blue pencils in each pencil bag. How many pencils are there altogether?
- Explain the process of problem solving as described in the previous exercises.

Practice and consolidation

The five exercises in the *Pupil's Book* and three exercises in the *Workbook* in Topic 4 are set out for the week. These exercises will give your pupils plenty of practice in multiplying three 1-digit numbers, with and without using brackets, multiplying by 1, and multiplying by zero. Explain the instructions and examples to your pupils so that they understand what to do in the following exercises:

Pupil's Book: Topic 4: Exercises 1–5

Workbook: Topic 4: Exercises 1–3

Topic 5 The distributive rule of multiplication

Skills: calculating, problem solving

Concept: multiplication

Vocabulary: times, multiply, distributive rule, distribute, multiplicand, product, brackets, expand

Resources: number charts, counters, concrete objects (such as sticks, bottle tops or buttons), boards, crayons, pencils, paper, exercise books

Learning experiences

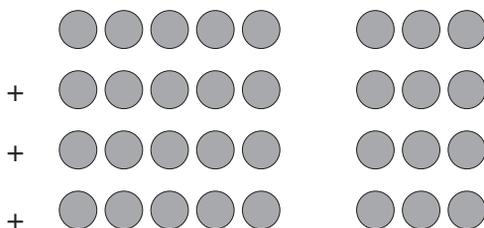
Now that your pupils are able to multiply 1-digit numbers using brackets, they are ready to learn how to use the distributive rule when multiplying a 1-digit number by a plus sum within brackets; e.g., $3 \times (2 + 5)$; and by a subtraction sum within brackets; e.g., $5 \times (4 - 2)$. Teach them how to write their calculations using the expanded method showing distribution across the brackets. The 'Lesson focus' section that follows gives you step-by-step guidelines on how to teach the concepts covered in Topic 5.

Lesson focus

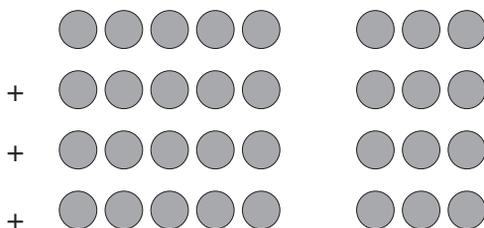
- First, do counting activities in multiples of 2, 3, 4, 5, 6, 7, 8, 9 and 10.
- Do quick mental calculations within the tables of 2, 3, 4, 5, 6, 7, 8, 9 and 10. The pupils should be getting used to the multiplication tables and getting to know them. They need to be consolidated and practised on a regular basis.

Distributive rule of multiplication over addition

- Write this sum on the board: $4 \times (5 + 3)$
- Then draw this: 
- Explain that we have 4 rows of 5 (four fives) and 4 rows of 3 (four threes).



- Next, explain that we are not just going to add to get the answer. Tell the pupils to look at the sum again:
 $4 \times (5 + 3)$
- Then explain that because we have 5 four times, and 3 four times, we are going to distribute the 4, which is the **multiplicand**, to the 5 and then distribute the 4 to the 3 like this:

$$4 \times (5 + 3)$$


- We then say:
 $(4 \times 5) + (4 \times 3)$ Find the product
 $20 + 12 = 32$ And add

Distributive rule of multiplication over subtraction

- Write this sum on the board: $3 \times (8 - 4)$
- First, distribute the multiplicand: $3 \times (8 - 4)$
- Find the products then subtract: $(3 \times 8) - (3 \times 4)$

$$24 - 12 = 12$$

- Let your pupils do a few examples and then share and check their answers with their peers.
- Write a problem sum on the board and use the process of problem solving as described in the previous lessons.

Practice and consolidation

The five exercises in the *Pupil's Book* and two exercises in the *Workbook* in Topic 5 are set out for the week. These exercises will give your pupils plenty of practice in using the distributive rule when multiplying a 1-digit number by a plus or subtraction sum within brackets. Teach them how to write their calculations using the expanded method showing distribution across the brackets. Explain the instructions and examples to your pupils so that they understand what to do in the following exercises:

Pupil's Book: Topic 5: Exercises 1–5

Workbook: Topic 5: Exercises 1–2

Topic 6 Dividing whole numbers without remainders

Skills: calculating, problem solving

Concept: division

Vocabulary: divide, division, share equally, groups, divisor, quotient, hook, vertical, horizontal

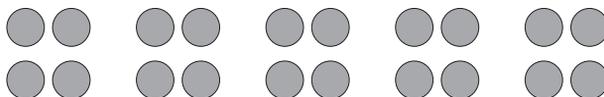
Resources: number charts, counters, concrete objects (such as sticks, bottle tops, buttons or stones), boards, crayons, pencils, paper, exercise books

Learning experiences

Topic 6 covers dividing whole numbers horizontally, without remainders. Teach your pupils the written division method using the hook only once they understand that division means sharing equally, and is just a shorter way of writing and calculating repeated addition or repeated subtraction. Once they have a good grasp of the division concept, teach them how to work out a multiplication number sentence using division. Do not use examples that leave a remainder at this point. The 'Lesson focus' section that follows gives you step-by-step guidelines on how to teach the concepts covered in Topic 6.

Lesson focus

- First, do counting activities in multiples of 2, 3, 4, 5, 6, 7, 8, 9 and 10.
- Do quick mental calculations within the tables of 2, 3, 4, 5, 6, 7, 8, 9 and 10. The pupils should be getting used to the multiplication tables and getting to know them. They need to be consolidated and practised on a regular basis.
- Next, let the pupils work in pairs.
- Ask each pair to use concrete objects and ask them to count out 20 objects.
- Next, ask them to divide them equally into groups of 4.
- Ask the pupils: “How many groups do you have?” (5); “How many are in each group?” (4).
- Ask them to draw a picture to show how they divided their 20 objects. They could draw:



- Your pupils need to understand that we take away the same amount each time; in other words, take 4 away from 20 each time until you have 0 left. So division is really repeated subtraction.
- Now explain that we can write the sum in the form of numbers. We use a symbol to show that we are dividing. We use the division symbol \div .
- Use a flashcard of the symbol. Then write this sum on the board: $20 \div 5 = 4$
- Explain that 5 is the **divisor** and 4 is the **quotient** (answer).
- Then use the sum in a word problem, for example:
You have 20 apples and you share them equally among 5 children. How many apples does each child get? (4 apples).
So division is also **equal sharing**.
- Explain that we can do division calculations in different ways:

Divide horizontally

Write this sum on the board and explain as follows:

$$\begin{array}{l} 46 \div 2 \quad (40 + 6) \qquad 40 \div 2 = 20 \\ \qquad \qquad \qquad \qquad \qquad \qquad 6 \div 2 = 3 \\ \qquad \qquad \qquad \qquad \qquad \qquad (40 \div 2) + (6 \div 2) \\ \qquad \qquad \qquad \qquad \qquad \qquad 20 + 3 \\ \qquad \qquad \qquad \qquad \qquad \qquad 20 + 3 = \underline{23} \end{array}$$

- Let the pupils do a few examples and check their answers with their peers. Let them explain what they did. They need to get enough practice in order to master their division skills.

Divide vertically

- Use a **hook** and divide:

$$2 \left| \begin{array}{l} 23 \\ 46 \end{array} \right. \begin{array}{l} \text{How many twos in 4 tens? (2 tens). How many} \\ \text{twos in 6? (3 twos)} \end{array}$$

- The **quotient** (23) is the **answer**, and is written above the hook, with the number (46) written inside the hook, whilst the divisor (2) is written outside the hook.

Multiplication and division

- Explain to your pupils that you can work out a multiplication number sentence using a division number sentence; for example:

$$5 \times 4 = 20 \text{ could be } 20 \div 4 = 5 \text{ or } 20 \div 5 = 4$$

Calculating division word sums

- Write a word sum on the board and let the pupils read it out aloud, for example:
You have 48 mangoes in a box. You divide them equally into 6 bags. How many mangoes are in each bag?
- You need to make sure that your pupils understand what is being asked and how they will know what operation to use.
- Guide the pupils into finding the solution.

Practice and consolidation

The ten exercises in the *Pupil's Book* and four exercises in the *Workbook* in Topic 6 are set out for the week. These exercises will give your pupils plenty of practice in different methods of horizontal division without remainders, with or without using the hook. Explain the instructions and examples to your pupils so that they understand what to do in the following exercises:

Pupil's Book: Topic 6: Exercises 1–10

Workbook: Topic 6: Exercises 1–4

Topic 7 Open sentences

Skills: sequencing, listing, identifying, explaining, skip counting, multiplying, dividing

Concepts: factors, multiples

Vocabulary: factors, multiplication, list, sequence, proof, multiples

Resources: multiplication number charts, counters, concrete objects (such as bottle tops, buttons or stones), boards, crayons, pencils, paper, exercise books

Learning experiences

Now that your pupils are feeling confident using multiplication and division, it is time for them to gain an understanding of factors and multiples of whole numbers. In this topic, work in the number range 0–50 only. The ‘Lesson focus’ section below gives you step-by-step guidelines on how to teach the concepts covered in Topic 7.

Lesson focus

- First, do counting activities in multiples of 2, 3, 4, 5, 6, 7, 8, 9 and 10.
- Do quick mental calculations within the tables of 2, 3, 4, 5, 6, 7, 8, 9 and 10. The pupils should be getting used to the multiplication tables and getting to know them well. They need to be consolidated and practised on a regular basis.

Explain factors

Factors are the numbers that you multiply together to get a particular product; for example:

- The product is **18**. So I can multiply as follows: $1 \times 18 = 18$; $2 \times 9 = 18$, $3 \times 6 = 18$; each gives the product **18**.
- So the factors of 18 are **1, 2, 3, 6, 9** and **18**, therefore 18 has 6 factors. So each factor can divide into 18 exactly with no remainder.
- Do a few examples of finding the factors of various numbers on the board. Demonstrate how to write them out in a

list format, and then show the **proof** by writing out the multiplication sums.

- Let the pupils work in pairs first to do a few examples together. Allow them to check and discuss with their peers. Thereafter, let them work on their own.
- Then give your pupils a multiplication number chart and demonstrate how to use it. Let them find factors of various numbers on the multiplication chart. Let them colour the factors on the chart.
- Once the pupils are confident in their understanding of factors, explain the difference between **factors** and **multiples**.

Explain multiples

Multiples are numbers of the same counting group that you multiply and the numbers increase. You can skip count in these groups; for example:

- Write a list of the multiples of 2 on the board: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, ...
- Multiples of 5 are: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, ...
- Now explain that we also write multiples in a **list** format; and that we skip count to find multiples of a particular number.
- Explain that the numbers increase and that they can go on and on.
- Explain that multiples are also numbers that can be divided equally by another number in the group without having a remainder, for example: $25 \div 5 = 5$.
- Demonstrate multiples on a number line.
- Do some examples on the board.
- Let the pupils do some examples with their peers and on their own.
- They need to understand the difference between factors and multiples.

Practice and consolidation

The twenty-three exercises in the *Pupil's Book* and ten exercises in the *Workbook* in Topic 7 are set out for the week. These exercises will give your pupils plenty of practice in understanding factors and multiples of whole numbers less than 50. Explain the instructions and examples to your pupils so that they understand what to do in the following exercises:

Pupil's Book: Topic 7: Exercises 1–23

Workbook: Topic 7: Exercises 1–10

Topic 8 Primary measures: Money

Skills: exchanging coins and notes, calculating, counting, calculating change

Concept: money

Vocabulary: Naira, kobo, exchange, change, more, less, addition, add, subtract, subtraction, buy, sell, total, total cost, times, multiply

Resources: number charts, counters, concrete objects (such as novelty money/play money or real money), items for shopping activities, flashcards, boards, crayons, pencils, paper, exercise books

Learning experience

In Topic 8, you will introduce your pupils to money. Using the Nigerian currency, you will teach them how to change coins into smaller units and notes into coins in many different combinations. You will also introduce your pupils to adding, subtracting and multiplying using money. As these concepts are particularly relevant to real life, make this clear by teaching money calculations in a fun way using shopping experiences. The ‘Lesson focus’ section below gives you step-by-step guidelines on how to teach the concepts covered in Topic 8.

Lesson focus

- First, do some counting activities in ones as well as in multiples.
- Recap coins and notes in the Nigerian currency, ensuring that the pupils can identify the various coins and notes. They also need to know the values of the coins and notes.
- Let the pupils make use of novelty money/play money or real money to do the shopping activities.
- Have items in the class to create a shopping scene such as empty soap boxes, empty butter dishes, tissue boxes, food cans, and so on. You could also make use of pictures pasted on cards to use as items for shopping, or you could use real items.

- Have price tags on each item so that your pupils know what each item costs.
- Have one pupil act as the shopkeeper or cashier (let pupils take turns doing this). Let the other pupils act as the customers and let them decide what they want to buy.
- Your pupils need to know that they have to calculate their total costs and calculate their change.
- They could also write out a shopping list beforehand. Then they could write a list afterwards to show how much money they spent.
- They do simple shopping activities to calculate total costs and calculate change. Demonstrate these calculations on the board first.
- The pupils need to understand too that if you buy more than one item of the same value that you can multiply to calculate the total, for example:
- I buy 5 ice-cream cones at ₦7.00 each. $5 \times ₦7 = ₦35$.
- Your pupils need a lot of practice doing different money calculations using addition, subtraction and multiplication in order to master their skills.

Exchanging coins up to ₦20.00

- Divide your class into groups of 4 to 6 per group. Give each group ₦20.00 in different quantities.
- Ask them to exchange one coin for smaller amounts; for example, take 10 **kobo** and exchange it for two smaller coins. What will it be?
- Let the pupils do it practically and let them write it down. Demonstrate how they need to write it out: $10k = 5k + 5k$ or $10k = 2k + 2k + 2k + 2k + 2k$, or draw the actual coins.
- Do plenty of these exercises. Your pupils need to understand this properly.
- Then they work in pairs. One gives the other an amount and asks for an exchange for smaller amounts. The other pupils then needs to work it out and give the exchanged amounts. Let them practise this a few times.

Exchanging notes up to ₦20.00

- Do the same activities as above, but this time use **Naira** notes.
- The pupils need to work with both notes and coins and be able to exchange notes and coins for smaller amounts.

- Let them practise this enough to consolidate their understanding.

Calculating money word sums

- Write a word sum on the board and let the pupils read it out aloud, for example:
You have ₦15.00 and you spend ₦8.00 on fruit. How much money do you have left?
- You need to make sure the pupils understand what is being asked and how they will know what operation to use.
- Guide your pupils in how to get to the solution.

Practice and consolidation

The fifteen exercises in the *Pupil's Book* and nine exercises in the *Workbook* in Topic 8 are set out for the week. These exercises will give your pupils plenty of practice in changing coins into smaller units, and notes into coins in many different combinations. They will also get practice in adding, subtracting and multiplying using money. Explain the instructions and examples to your pupils so that they understand what to do in the following exercises:

Pupil's Book: Topic 8: Exercises 1–15

Workbook: Topic 8: Exercises 1–9

Topic 9 Primary measures: Length (1)

Skills: measuring, reading, recording, calculating, identifying, estimating

Concept: length

Vocabulary: measurement, centimetre, cm, metre, m, tape measure, length, width, height

Resources: number chart, counters, concrete objects, rulers, tape measures, string, metre stick, flashcards, boards, crayons, pencils, paper, exercise books

Learning experiences

In Topic 9, you will teach your pupils how to estimate (guess), compare and measure the lengths (in cm and m) of various

shapes and objects using a variety of measuring devices such as string, rulers, metre sticks and tape measures. The ‘Lesson focus’ section below gives you step-by-step guidelines on how to teach the concepts covered in Topic 9.

Lesson focus

Measuring objects

- Let the pupils work in pairs. One will **measure** and one will **record**; then swap roles.
- First, let the pupils examine a ruler – read and understand the markings on a ruler as well as the standard units on the ruler (cm). Then explain that we start to measure from the **zero** mark.
- Ask the pupils to measure concrete objects in the classroom.
- Ask them to first **estimate** the length and/or the width and/or the height of the object and to record their estimates.
- Then ask them to measure the same object and to write down the accurate measurements.
- Tell them to measure in centimetres (cm) or metres (m), depending on the size of the objects they are measuring.
- Next, ask them to compare their estimates with their actual measurements.
- They could measure a book, a table/desk, a floor, a window sill, a shelf, an eraser, a pencil, an arm, a leg from knee to ankle, a book, a shape, a poster and so on.
- Demonstrate and explain the use of string for measuring **curved edges** or curved sides.
- Observe them closely when they do these activities and give guidance and assistance where necessary.

Measuring lines

- Draw lines on the board and demonstrate how to measure a line. They would use a ruler. Remind them to start at zero when measuring.
- Write these measurements and instruction on the board:
Draw lines measuring:
 - 8 cm
 - 5 cm
 - 10 cm
 - 15 cm
- Let your pupils work individually. They need to measure the lengths accurately, and then draw the lines. It must be

pointed out that pencils should be sharp when used to draw lines accurately.

Calculating word sums with length

- Write a word sum on the board and let the pupils read it out aloud; for example:
The length of a soccer field is 30 m long. Half of the field is covered with mud. What length of the field can be used?
- You need to make sure the pupils understand what is being asked and how they will know what operation to use and how they will go about solving the problem.
- Guide the pupils into finding the solution.

Practice and consolidation

The five exercises in the *Pupil's Book* and three exercises in the *Workbook* in Topic 9 are set out for the week. These exercises will give your pupils plenty of practice in estimating, comparing and measuring length in cm and m with string and a tape measure. Explain the instructions and examples to your pupils so that they understand what to do in the following exercises:

Pupil's Book: Topic 9: Exercises 1–5

Workbook: Topic 9: Exercises 1–3

TERM

2

Revision

The pupils work on their own to complete the exercises.

The exercises will revise and consolidate the work done throughout the second term.

Explain the instructions and examples carefully to your pupils so that they understand what to do in each activity.

Give the pupils enough practice by doing:

Pupil's Book: Revision Term 2: Revision exercises 1–5

Workbook: Revision Term 2: Revision exercises 1–3

Topic 1 Revision

These exercises are to evaluate the pupils' understanding of the various skills and concepts that were taught in the previous term.

The pupils work on their own to complete the exercises. Ensure that they understand the instructions beforehand.

Pupil's Book: Topic 1: Revision exercises 1–5

Workbook: Revision exercises 1–3

Topic 2 Primary measures: Length (2)

Skills: measuring, calculating

Concept: perimeter, area

Vocabulary: distance around, outside boundary, perimeter, length, breath/width, rectangle, triangle, square, area inside a space, squares, square units, length times breadth

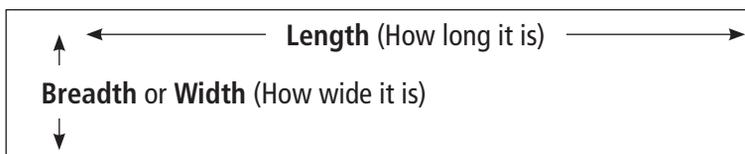
Resources: number chart, rulers, counters, string, flashcards, boards, crayons, pencils, paper, exercise books

Learning experiences

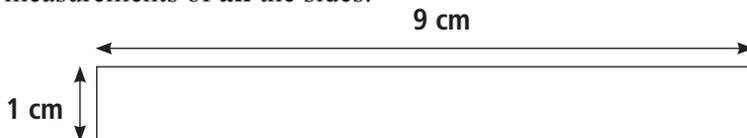
In Topic 2, you will teach your pupils how to measure the distance (in cm) around the outside of a shape, object or surface. Then give them opportunities to measure and calculate for themselves (in cm and m) the perimeter of various straight and curved shapes using string and a ruler. Once your pupils understand perimeter, they are ready to learn about area. Teach this new concept by showing your pupils how to count square units to calculate the areas of squares, rectangles and composite shapes with straight sides. The ‘Lesson focus’ section below gives you step-by-step guidelines on how to teach the concepts covered in Topic 2.

Lesson focus

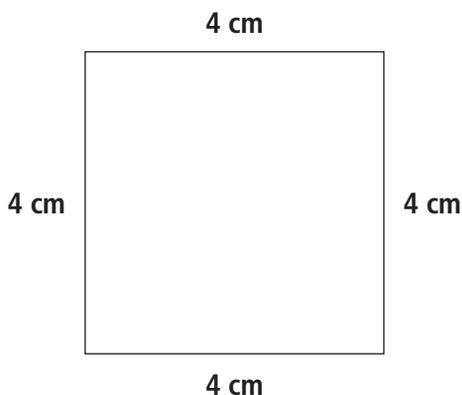
- Explain to the pupils what perimeter is. Explain that perimeter is the distance around the outside boundary of any flat shape or space. Use flashcards with the words **perimeter**, **outside boundary**, **flat shape**.
- Draw a rectangle on the board and explain that the rectangle has length and width (breadth). Show these aspects to the pupils:



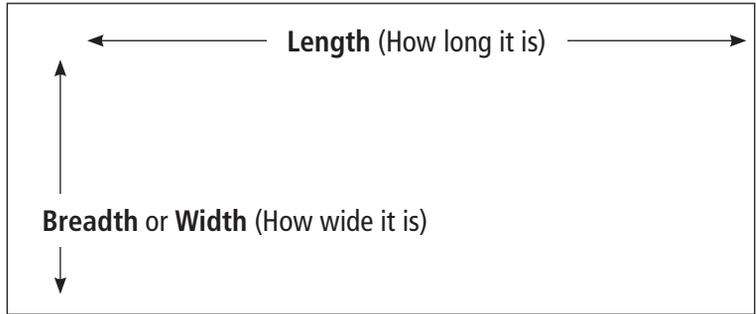
- Next, explain that we calculate perimeter **by adding** up the measurements of **all** the sides.



- A rectangle has two pairs of sides that are the same.
So: $P = 1 + 1 + b + b$ (perimeter = length plus length plus breadth plus breadth): $9 + 9 + 1 + 1 = 20$ cm
- Now draw a square on the board and demonstrate how to calculate perimeter of a square.
- 4 cm
- A square has four sides the same. So: $P = 1 + 1 + 1 + 1$
(or $s + s + s + s$): $4 + 4 + 4 + 4 = 16$ cm



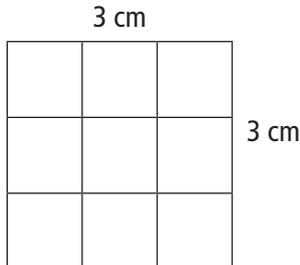
- Once your pupils are confident calculating the perimeter of shapes with straight sides, demonstrate and explain how to use string to measure **curved boundaries** and how to then calculate the perimeter by placing the string on a ruler and measuring it from zero.
- Also demonstrate calculating perimeter using **squared paper** and then let the pupils practice on squared paper (see page 173 in the *Pupil's Book*).
- Explain to the pupils what **area** is. Explain that area is the inside space of any **flat** shape or space. Use flashcards with the words **area, space inside a flat shape**.
- Draw a rectangle on the board and explain that the rectangle has length and width (breadth). Show these aspects to the pupils.



- Next explain that we calculate area **by counting** the squares inside the shape or space.

1 cm	2 cm	3 cm	4 cm	5 cm	6 cm	7 cm
8 cm	9 cm	10 cm	11 cm	12 cm	13 cm	14 cm

- Area = 14 square units
- Teach them that we can also calculate area by **multiplying length by breadth**.
- A rectangle has two pairs of sides the same. So: $A = l \times b$ (Area = length times breadth): $7 \times 2 = 14$ cm squares.
- Draw a square on the board and demonstrate how to calculate area.



- A square has four sides the same.
So: $A = l \times b: 3 \times 3 = 9$ cm squares
- Demonstrate and explain how to calculate area using squared paper. Let the pupils practise drawing and calculating area using squared paper.
- Calculating word problems with area.
- Write a word problem on the board and let the pupils read it out aloud; for example:
The mat on the floor has an area of 16 square units. If the mat takes up half the size of the room, what is the area of the

room? Draw the squares and use colour to show the area of the mat.

- You need to make sure the pupils understand what is being asked and how they will go about solving the problem.
- Guide the pupils into finding the solution.

Calculating word sums with perimeter

- Write a word sum on the board and let your pupils read it out aloud, for example:
The netball court at the school will be repaired. What is the perimeter of the netball court if the court is 25 m wide and 50 m long?
- You need to make sure the pupils understand what is being asked, how they will know what operation to use and how they will go about solving the problem.
- Guide the pupils into finding the solution.

Practice and consolidation

The nine exercises in the *Pupil's Book* and six exercises in the *Workbook* in Topic 2 are set out for the week. These exercises will give your pupils plenty of practice in finding, measuring and calculating the perimeter of various straight and curved shapes and spaces using string and a ruler; counting square units and calculating the area of squares, rectangles and composite shapes. Explain the instructions and examples to your pupils so that they understand what to do in the following exercises:

Pupil's Book: Topic 2: Exercises 1–9

Workbook: Topic 2: Exercises 1–6

Topic 3 Primary measures: Time

Skills: reading the time, writing the time, calculating time in hours, minutes, days, weeks, months, years, calendar, before, after, ordinals, dates

Concepts: 12-hour time, 24-hour time, reading time from a calendar

Vocabulary: time, hours, minutes, seconds, o'clock, half past, quarter past, quarter to, analogue, digital, midday, midnight, minute hand, hour hand, a.m., p.m., hr, min, days, weeks, months, years, calendar, before, after, ordinals, dates

Resources: concrete objects (such as different types of clock faces and calendars), clock templates for the pupils to make their own clocks, scissors, split pins, boards, flashcards, pencils, crayons, paper, exercise books

Learning experiences

In Topic 3, teach your pupils to read and tell the time, using both digital and analogue clock faces. First introduce the concept of 12-hour time using a.m. and p.m., after which you can teach them how to read and write 24-hour time. Once your pupils are more confident with the concept of time, you can teach them how to read a calendar. Also consolidate the vocabulary and sequence of days of the week and months of the year. Then give them opportunities to solve calculations using days, months, weeks and years. The ‘Lesson focus’ section below gives you step-by-step guidelines on how to teach the concepts covered in Topic 3.

Lesson focus

Your pupils have been introduced to **time** in Primary 2. Quickly recap their knowledge of time in terms of hours on the clock; i.e. telling the time in hours on both analogue and digital clocks.

- Use a big clock to recap/teach the clock **face** and time. Remind them that the **long hand** is the minute hand, and the **short hand** is the hour hand. The pupils should be able to read the time on the clock.
- Let the pupils show the time in hours on the big clock. Let them read the time in hours when written in analogue form as well as in digital form.
- Explain minutes in the same way. Demonstrate how to count the minutes in fives on the clock, starting from 12. Discuss 60 minutes in an hour, 30 minutes in half an hour, and 90 minutes in one and a half hours. Let them show different times on a clock, then read and write their times using **o’clock** and **half past**.
- Remind them that **a.m.** means **morning**, and **p.m.** means **afternoon**.
- It is important for the pupils to know how to count 5 min, 15 min, 30 min, 45 min and 1 hr on a clock. They must understand how to read and write **quarter to** and **quarter past**.
- Let your pupils make their own clocks so that they can practise reading the time by moving the hour and minute hands.

- The pupils must be given enough opportunities to draw clocks and show different times on the clocks.
- Practise working out how much time has passed in everyday activities. Practise writing the times of everyday activities.
- The pupils must understand reading the time in terms of: ‘**to** the hour’ and ‘**past** the hour’.
- Let your pupils calculate time as follows: 1 hr = ... min; 30 min = ... hrs; $2\frac{1}{2}$ hrs = ... min; 60 min = ... hrs; 90 min = ... hrs and so on.
- Once your pupils feel confident reading and writing 12-hour time using a.m. and p.m., use a clock face like the one on page 184 of the *Pupil's Book* to teach them 24-hour time.
- Introduce the **calendar** by having enough calendars in the class for the pupils to work either individually or in pairs.
- Point them to the calendar and start off by recapping the **days of the week**, even though they dealt with this in Primary 2. Let them identify the names of the days of the week on the calendar. They need to say each name, pronounce it correctly, write it and read it.
- Discuss the days of the week and what happens on those days, as well as on special days in the family and special holidays in the year. Let your pupils discuss their views and ideas.
- Next, teach the **months of the year**. The pupils need to learn them well enough to be able to read and write them. Also teach them how many days are in each month.
- Using the calendars, ask the pupils to identify specific months, days and dates on the calendar.
- Explain that a **leap year** happens every **four** years when February has one extra day.
- Let the pupils keep a diary for a week/a month and so on.

Problem solving with a calendar

- Let the pupils do some problem solving on the calendar on page 187 in the *Pupil's Book*, for example:
- What day is two weeks from Tuesday, 14th June?
- Danny left on 18th March and returned on 28th March. How long was he away?
- What month is before August?
- What month is after July?
- How many days are in September?
- When is your birthday? What is the date four days later? And so on.

Calculating word problems with time

- Write a word problem on the board and let the pupils read it out aloud; for example:
You leave school at 2:30 in the afternoon and arrive at home at 3:00 p.m. How long does it take you to get home from school?
- You need to make sure that the pupils understand what is being asked and how they will go about solving the problem.
- Guide your pupils into finding the solution.

Practice and consolidation

The ten exercises in the *Pupil's Book* and five exercises in the *Workbook* in Topic 3 are set out for the week. These exercises will give your pupils plenty of practice in reading and telling time; digital and analogue time; 12-hour time and 24-hour time; reading a calendar; months of the year; and solving calculations using days, months, weeks and years. Explain the instructions and examples to your pupils so that they understand what to do in the following exercises:

Pupil's Book: Topic 3: Exercises 1–10

Workbook: Topic 3: Exercises 1–5

Topic 4 Primary measures: Mass/Weight

Skills: sequencing, ordering, identifying, measuring, comparing, estimating

Concept: mass

Vocabulary: heavy, light, more, less, most, least, kilogram, gram, scale

Resources: everyday items (such as rice, flour, sugar, feather, wool, books, soap, potatoes, pumpkins, shoes, bags, bricks, stones, etc.), a balancing scale, a measuring scale, boards, flashcards, pencils, crayons, paper, exercise books

Learning experiences

This week in Topic 4, you will introduce your pupils to measuring the mass of everyday objects. In your teaching, include estimating, measuring and calculating mass in grams (g) and kilograms (kg), as well as how to read a scale. Then give them opportunities to apply addition, subtraction, multiplication

and fractions using grams and kilograms. The ‘Lesson focus’ section below gives you step-by-step guidelines on how to teach the concepts covered in Topic 4.

Lesson focus

- The pupils had an introduction to the measurement of **mass** in Primary 2. Quickly recap on knowledge of **heavy, light, heavier, lighter, heaviest and lightest**.
- Introduce the standard unit measures for mass: kilogram (kg) and gram (g).
- Discuss and explain why standard measurements are necessary.
- For example, to follow a recipe, it is important that the quantities of the ingredients are accurate or else the end product will be a flop.
- Make use of scales and measuring cups to measure quantities such as 1 kilogram, half a kilogram ($\frac{1}{2}$ kg), one and a half kilograms (1.5 kg), 2 kg, 500 g, 250 g, 200 g, 125 g, 10 g, 15 g, 5 kg and so on.
- Explain graded markings on a scale so that your pupils will understand them. Let them explain the differences between, for example, 15 g and 1.5 kg.
- It is important for your pupils to compare masses to find out about more, less, most, least, heavier, lighter, heaviest and lightest.
- They need to be able to arrange the masses in a specific order.
- Let the pupils draw the pictures of what they are measuring and label them with the correct standard measuring units.
- Let them identify specific masses of items in magazines and newspapers or adverts. They can cut out the pictures to make a poster to show their understanding of the masses.
- Give them plenty of opportunities to use addition, subtraction, multiplication and fractions to calculate using g and kg.

Calculating word problems with mass

- Write a word problem on the board and let the pupils read it out aloud for example:
Mom bought 500 g of sugar and then used 250 g to bake a cake. How much sugar was left?
- You need to make sure the pupils understand what is being asked and how they will go about solving the problem.
- Guide the pupils into finding the solution.

Practice and consolidation

The five exercises in the *Pupil's Book* and two exercises in the *Workbook* in Topic 4 are set out for the week. These exercises will give your pupils plenty of practice in estimating, measuring and calculating mass in grams (g) and kilograms (kg), as well as in reading a measuring scale. Explain the instructions and examples to your pupils so that they understand what to do in the following exercises:

Pupil's Book: Topic 4: Exercises 1–5

Workbook: Topic 4: Exercises 1–2

Topic 5 Secondary measures: Capacity

Skills: sequencing, ordering, identifying, measuring, comparing

Concept: capacity

Vocabulary: full, empty, half full, cup, more, less, most, least, litres (ℓ), millilitres (ml)

Resources: measuring jug, litre bottles, measuring cups, teaspoons, boards, flashcards, pictures, pencils, crayons, a sheet of paper, exercise books

Learning experiences

In Topic 5, your pupils will learn to measure liquids using various containers of different capacities. During this week, teach them how to estimate, measure and calculate capacity in millilitres (ml) and litres (ℓ). Then give them opportunities to add and subtract in ml and ℓ. The ‘Lesson focus’ section below gives you step-by-step guidelines on how to teach the concepts covered in Topic 5.

Lesson focus

- The pupils had an introduction to the measurement of **capacity** in Primary 2. Quickly recap their knowledge of **full, empty, half full, more, less, most** and **least**.
- Introduce the standard unit measures for capacity: litres (ℓ) and millilitres (ml).
- Discuss and explain why standard measurements are necessary.

- For example, to follow a recipe, the quantities of the ingredients must be accurate or else the end product will be a flop.
- Make use of bottles, measuring jugs and water to measure quantities such as a litre, half a litre, one and a half litres, 2 litres, 500 ml, 250 ml, 200 ml, 125 ml, 5 ml, 15 ml, 5 ℓ.
- Use measuring cups that are graded to measure the quantities so that the pupils can learn to read these measurements.
- Explain graded markings on the measuring containers so that your pupils will understand them. Let them explain the differences between, for example, 15 ml and 1,5 ℓ.
- It is important for the pupils to compare quantities to find out about more, less, most and least.
- They need to be able to arrange the capacities in specific sequences.
- Also give them opportunities to add and subtract litres and millilitres, as well as working with fractions ($500 \text{ ml} = \frac{1}{2} \ell$, $350 \text{ ml} = \frac{1}{4} \ell$, etc.)
- Let your pupils draw pictures of what they are measuring and then label them with the correct standard measuring units.

Calculating word problems with capacity

- Write a word problem on the board and let the pupils read it out aloud, for example:
The school gives 12 litres of milk to each of the four Primary 3 classes. How much milk does the school give in total?
- You need to make sure the pupils understand what is being asked and how they will go about solving the problem.
- Guide the pupils into finding the solution.

Practice and consolidation

The five exercises in the *Pupil's Book* and three exercises in the *Workbook* in Topic 5 are set out for the week. These exercises will give your pupils plenty of practice in estimating, measuring and calculating capacity in millilitres (ml) and litres (ℓ). Explain the instructions and examples to your pupils so that they understand what to do in the following exercises:

Pupil's Book: Topic 5: Exercises 1–5

Workbook: Topic 5: Exercises 1–3

Topic 6 Three-dimensional (3-D) shapes

Skills: identifying, describing, comparing, drawing, recognising, labelling, matching, reading, observing, sorting, following

Concepts: pyramid, cone, prism, sphere, cylinder, 3-D, 2-D, circle, square, rectangle, triangle, physical characteristics of shapes

Vocabulary: two-dimensional, three-dimensional, pyramid, cone, curved surface, round surface, faces, flat face, edges, curved edges, vertex (vertices), create, construct, length, breadth, depth

Resources: a variety of boxes, magazines, 3-D shapes, containers or objects of various shapes and sizes, flashcards with names of shapes, prepared charts with drawings of shapes, number charts, tape measures, pencils, books, crayons, 3-D objects, drinking straws, Prestik, cut-out, 2-D shapes, scissors

Learning experiences

Topic 6 introduces your pupils to 3-D objects. The object of your teaching this week is to help your pupils understand that 3-D objects have length, breadth and depth. You will also teach them how to identify, name, compare, construct and draw 3-D objects. The ‘Lesson focus’ section below gives you step-by-step guidelines on how to teach the concepts covered in Topic 6.

Lesson focus

Identifying shapes

- Divide the pupils into groups and take them outside. Ask them to observe their surroundings and to look for **3-D objects** around them. Each group writes a list of the 3-D objects they see. Once all the groups have written their lists, return to the classroom.
- Give each group an opportunity to report back to the class.
- Then hold up a box and ask the pupils what shape it is. Hold up a ball, an orange, a triangle, a circle, an empty toilet roll and a mug. Each time ask the pupils to tell you what shape the object is.
- Display a chart with drawings of the objects and flashcards with the names of their shapes (for example, a mug is a **cylinder**). Explain to your pupils that 3-D objects have **length, breadth** and **height**.
- Point to each shape in turn and say the name of the shape. After

- you say the name, ask a pupil to choose the correct flashcard and to match it to the correct drawing on the chart. Continue until the pupils have used all the flashcards to label the chart.
- Then show the pupils a pyramid. Ask them to describe and talk about its shape. Put a flashcard on the board and let them read the word pyramid. Do the same with the **cone**. Display a chart with pyramids and cones in the classroom.
 - Get the pupils to identify all the shapes they have seen in magazine pictures.

Describe, sort and compare shapes

- Give each group a variety of 3-D objects and 2-D shapes to work with on the mat or at their desks.
- Ask them to sort their shapes and objects according to size and according to whether they are 2-D or 3-D. To sort, the pupils will have to compare the shapes and objects.
- Let each group describe to the class how they sorted their shapes and objects. The pupils must listen to each other and wait their turn to give feedback.
- Then hold up an object with a **curved** surface, for example a glass. Ask the pupils to describe the shape. See if they can recognise the curved surface. Do the same for objects with curved **edges** and round surfaces.
- Hold up an object with flat **faces**, for example, a box. Point out the faces of the box. Let the pupils count the number of faces. Then show them the edges and point out that the edges are straight. Let them count the edges.
- Ask the pupils to discuss the pictures on pages 201 and 202 of the *Pupil's Book*. Ask them to identify and describe the different kinds of shapes they see.

Creative shapes

- Let the pupils use cut-out 2-D triangles to make stars. Ask them to colour and decorate the stars. Tie a piece of thread to each star and hang them up in the classroom.
- Let the pupils use cut-out shapes and/or 3-D objects (blocks, empty toilet rolls, and so on) that are in the classroom to create other shapes of their choice.
- Show the pupils how to use drinking straws and adhesive to make **cubes** and **cuboids (prisms)**. They will need scissors to cut the straws to the lengths they require, and adhesive or

- clay to join the straws at the corners. (The pupils could also use toothpicks and jelly tots.)
- Get them to describe their 3-D object and how they made it.

Practice and consolidation

The seven exercises in the *Pupil's Book* and two exercises in the *Workbook* in Topic 6 are set out for the week. These exercises will give your pupils plenty of practice in understanding that 3-D objects have length, breadth and depth, as well as identifying, naming, comparing, constructing and drawing 3-D objects. Explain the instructions and examples to your pupils so that they understand what to do in the following exercises:

Pupil's Book: Topic 6: Exercises 1–7

Workbook: Topic 6: Exercises 1–2

Topic 7 Symmetry

Skills: cutting, drawing, describing, recognising, identifying

Concept: lines of symmetry

Vocabulary: line(s) of symmetry, broken line, symmetrical

Resources: worksheets with 2-D shapes, number charts, tape measures

Learning experiences

In Topic 7, you will teach your pupils about symmetry. The aim is to find symmetry in various different 2-D shapes and pictures by folding, cutting and drawing. Also teach your class how to identify 2-D shapes and name their properties. The 'Lesson focus' section below gives you step-by-step guidelines on how to teach the concepts covered in Topic 7.

Lesson focus

- Give each pupil a sheet of paper with drawings of shapes on it (see page 209 in the *Pupil's Book*). Tell them to find and cut out the triangle.
- Ask them to fold the triangle in half vertically and then to unfold it. Explain that the fold runs down the middle of the triangle. Make sure they understand that each side of the fold is an exact reflection of the other side.
- Explain that the fold makes a line of symmetry. Let them

draw a **broken line** with a ruler on the fold. Draw a broken line on the board to show them what you mean. Point out that some shapes have more than one line of symmetry. Encourage pupils to explore this idea.

- Then ask the pupils to find the circle and the square. They first fold the shapes and then draw in the lines of symmetry. Ask them whether they think the shapes could have more than one line of symmetry. Encourage them to see if they can identify more than one line of symmetry in each shape.
- Continue until they have completed folding and drawing the lines of symmetry on all the shapes.
- Let the pupils decorate or colour their shapes to show the symmetry.
- Also have a discussion with your pupils about symmetry in nature.
- Homework: List five things at home or on your way home from school that are symmetrical.

Properties of 2-D shapes

Ensure that your pupils can recognise and name all the 2-D shapes on page 212 of the *Pupil's Book*.

Once they are able to do that, teach them the **properties** of a rectangle, square, triangle and circle.

Practice and consolidation

The nine exercises in the *Pupil's Book* and five exercises in the *Workbook* in Topic 7 are set out for the week. These exercises will give your pupils plenty of practice in folding, cutting and drawing to find symmetry in various different 2-D shapes and pictures. They will also get practice in identifying 2-D shapes and their properties. Explain the instructions and examples to your pupils so that they understand what to do in the following exercises:

Pupil's Book: Topic 7: Exercises 1–9

Workbook: Topic 7: Exercises 1–5

Topic 8 Data collection: Pictograms and mode

Skills: collecting data, sorting data, displaying data, analysing data, observing, classifying, counting, questioning, answering questions, recording, interpreting, reasoning, discussing

Concepts: graphs, tables, sorting, recording, data

Vocabulary: sort, group, bar graph, tally table, analyse, pictograph, pie chart, record, data, plot

Resources: concrete objects (such as coloured beads, buttons and counters), number charts, crayons, pencils, paper, flashcards, magazines

Learning experiences

In this final topic for the year, your pupils will learn to read, interpret and draw pictograms, tally tables, bar graphs, pie charts and tables. The ‘Lesson focus’ section below gives you step-by-step guidelines on how to teach the concepts covered in Topic 8.

Lesson focus

Steps to graphing

- Divide your class into smaller groups. Give each group about twenty different coloured buttons (or whatever counters you have). Make sure that each group does not have more than six different colours.
- Ask the pupils to **sort** the counters into groups of the same colour.
- Ask the pupils to **list** all the colours they have on the **tally** sheet and **block graph** (see page 131 in the *Workbook*).
- Ask the pupils to count and record the number of counters in each colour group.
- Ask each group to complete the block graph by colouring in a block for each counter.

- Ask the groups to discuss and then write down their observations.
- The pupils select one member from their group to present their findings to the rest of the class.
- Circulate among the groups observing, guiding and assisting where required.
- Homework: Ask 10 people at home and in your neighbourhood: “What is your favourite colour?”
- Do a **tally table**, **bar graph** and **data analysis** of your findings.

Sorting data

- The pupils work in small groups on a mat. Give them a variety of objects. Explain to the pupils that the objects in front of them are mixed up. Ask the pupils to sort the objects into groups that belong together.
- Explain that after they have finished sorting or grouping the objects, they can name the groups. Let the pupils name the groups and explain why they chose a particular name.
- Explain to the pupils that all the information they have in front of them (the sorted groups) is called **data**. Tell them that data is another word for information.
- We collect data when we gather information.
- Tell the pupils that we can collect data by asking questions, looking in books, magazines, newspapers and by looking around us.
- Explain to your pupils that in the previous lessons they sorted their data into specific groups and named the groups according to specific characteristics.

Recording data

- Explain that we can write down or record data. Show the pupils how we can record data in different ways. We can use pictures, ticks, strokes, crosses, dots or colours to represent data in a **block graph**, **bar graph**, **pictograph** or **pie chart**.
- Show the pupils that each symbol that we record can represent one item, for example, we can write a 3 to represent 1 child; or one symbol can represent a fixed number of items, for example, we can draw one orange to represent five oranges.

Reading and interpreting data

- Explain to the pupils that it is important to read all the data they have in front of them. When they look at data and read the information, they need to understand what it is and what it says. The data will inspire the pupils to think of questions as they will want to know more about the data.
- They must be able to read data from tally sheets, tables and different types of graphs.
- They will ask “why?” and “why not?” questions. Pupils must be able to read and interpret data so that they can answer questions about the data or make decisions about it.
- Choose one activity in the *Pupil’s Book* to do as a class exercise so that the pupils can practise reading and interpreting data.

Practice and consolidation

The five exercises in the *Pupil’s Book* and four exercises in the *Workbook* in Topic 8 are set out for the week. These exercises will give your pupils plenty of practice in reading, interpreting and drawing pictographs, tally tables, bar graphs, pie charts and tables. Explain the instructions and examples to your pupils so that they understand what to do in the following exercises:

Pupil’s Book: Topic 8: Exercises 1–5

Workbook: Topic 8: Exercises 1–4

Revision

The pupils work on their own to complete these revision exercises.

The exercises will revise and consolidate the work done throughout Term 3.

Explain the instructions and examples to your pupils so that they understand what to do in each activity.

Give the pupils enough practice by doing:

Pupil's Book: Revision Term 3: Revision exercises 1–9

Workbook: Revision Term 3: Revision exercises 1–6