

Mathematics



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Teacher's Guide

Gaynor Cozens • Cheryl Ann Thomas



CAPS



Mathematics

Grade 3 Teacher's Guide

Gaynor Cozens • Cheryl Ann Thomas



CAMBRIDGE UNIVERSITY PRESS

University Printing House, Cambridge CB2 8BS, United Kingdom

One Liberty Plaza, 20th Floor, New York, NY 10006, USA

477 Williamstown Road, Port Melbourne, VIC 3207, Australia

314-321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre, New Delhi - 110025, India

79 Anson Road, #06-04/06, Singapore 079906

The Water Club, Beach Road, Granger Bay, Cape Town 8005, South Africa

Cambridge University Press is part of the University of Cambridge.

It furthers the University's mission by disseminating knowledge in the pursuit of education, learning and research at the highest international levels of excellence.

www.cambridge.org Information on this title: www.cambridge.org/9781107381094

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First published 2012 Updated 2020 Reprinted 2020

ISBN 978-1-107-38109-4

Editor: Christa Büttner-Rohwer, Inge du Plessis Typesetter: Laura Brecher, IO Publishing Illustrators: Sue Beattie, Anne Westoby, Michelle Delaney, Karlie Hadingham and Geoff Walton

Acknowledgements

Getty Images: karasu_fukazawa (p.174); Nadzeya_Dzivakova (p.197b); Iuliia Kanivets (p.210a); 4x6 (p.210b); ilyasov (p.210c); Ihor Biliavskyi (p.225b); Sudowoodo (p.225c); zak00 (p.225d)

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Part | Introduction

The National Curriculum and Assessment Policy Statements (January 2011) replace the National Curriculum Statements Grades *R*–9 (2002) and the National Curriculum Statements Grades 10–12 (2004). The Curriculum and Assessment Policy Statement (CAPS) for Foundation Phase Mathematics (Grades *R*–3) comes into effect in January 2012, and replaces the Subject Statements, Learning Programme Guidelines and Subject Assessment Guidelines that were used before then.

The instructional time for subjects in the Foundation Phase is given in the table below.

Subject	Time allocation per week (hours)
Languages (FAL and HL)	10 (11)
Mathematics	7
Life skills:	6 (7)
• Beginning Knowledge	1 (2)
Creative Arts	2
Physical Education	2
• Personal and Social Well-being	1

Table 1: Instructional time for Foundation Phase subjects

The mathematics curriculum: aims and skills

The aims of the national curriculum for Mathematics, as set out in the CAPS, are to develop the following qualities in learners:

- a critical awareness of how mathematical relationships are used in social, environmental, cultural and economic relations;
- confidence and competence to deal with any mathematical situation without being hindered by a fear of mathematics;
- a spirit of curiosity and a love for mathematics;
- an appreciation for the beauty and elegance of mathematics;
- recognition that mathematics is a creative part of human activity;
- deep understanding of concepts needed to make sense of mathematics;
- acquisition of specific knowledge and skills necessary for:
 the application of mathematics to physical, social and
 - mathematical problems;
 - the study of related subject matter (e.g. other subjects)
 - the further study of mathematics.

The CAPS lists the following specific skills that learners must acquire to develop their essential mathematical skills:

- correct use of the language of mathematics;
- number vocabulary, number concept and calculation and application skills;

- ability to listen, communicate, think, reason logically and apply the mathematical knowledge gained;
- ability to investigate, analyse, represent and interpret information;
- ability to pose and solve problems;
- awareness of the important role that mathematics plays in real-life situations, including the personal development of the learner.

Problem-solving and mathematics

This *Study and Master Mathematics* course aims to encourage learnercentred and activity-based learning through problem-solving, an approach which should be applied throughout the course.

Problem-solving is one of the unique features of learning and teaching mathematics. Learners should be able to:

- make sense of problems;
- analyse, synthesise (create), determine and execute solution strategies;
- validate (confirm) and interpret the solutions appropriate to the context.

You should realise that problem-solving does not necessarily imply solving word problems. Word problems could be examples of extending problems that test knowledge involving the use and validation of learned techniques.

In a problem-solving situation, it may be highly unlikely that learners have had previous instruction on how to tackle the problems they are facing. Learners should invent their own solution strategies using different problem-solving procedures. There are no readymade recipes or blueprints for searching for and finding problem-solving solutions.

Solutions and strategies are not as obvious in problem-solving situations as they are in word problems. In word problems it is easy to identify which operations to apply to solve the problem. Problem-solving is not a topic that can be learned. It is a process in which learners can explore situations by applying different skills. Learners construct new meaning by building on previous knowledge and experiences in an active, cooperative environment. Learners do not learn problem-solving techniques by memorising rules or consulting checklists. You should raise consistent awareness of the different techniques suitable for different problem-solving situations. You could give the problem as a homework task, group activity or introduction to new concepts (knowledge), or deal with it in an oral or written situation that applies to all learners without gender or culture bias.

Keep in mind that it is important to acknowledge that people are fundamentally different, and experience problem situations differently. Expect learners to apply a wide range of different methods and ideas in the problem-solving process. Monitor learner groups carefully and encourage discussions and arguments while questioning learners about their progress.

Have a class discussion on making mistakes, working well together, useful steps to keep in mind during the lesson, and enjoyment as an important part of mathematics activity. Discuss each aspect and ask learners questions like: How do you feel when you have made a mistake? Why do you feel this way? Explain, for example, what it means to work towards a common goal.

Inclusivity in the mathematics classroom

The ultimate aim of an inclusive school is to contribute towards the development of an inclusive society, where diversity is respected and used as a tool for building a stronger community.

Inclusive education is a process whereby barriers to successful learning are identified and then removed for every learner. This starts at the school level, where the physical environment should be designed to accommodate learners who are differently-abled, where the school principal, the staff and the parents/guardians work together to create a good school ethos and where specialised equipment and/or personnel are provided for the differently-abled learners.

Highlight on a day-to-day basis the aspects of mathematics that encourage cooperative learning and respect for diversity.

Plan activities on an individual, pair or group basis so that you can meet the different needs of learners.

Homogeneous groups or pairs (in which all the learners have more or less the same level of skill and knowledge) are appropriate when the purpose of the group is to assist learners who have a common special educational need. Use homogeneous groups to cope with differentiated learning, for example when learners who have completed a class activity are given an individual or group extension activity while you work with the rest of the class; or for a group that needs more intensive input from you to understand and complete an activity. The intention is not for these groups to be fixed groups, but that learners move to different groups according to their needs and progress.

Heterogeneous groups have a number of advantages. These groups consist of learners with diverse backgrounds, gender, language and ability. Heterogeneous groups expose learners to new ideas, generate more discussion, and allow explanations to be given and received more frequently, which increases understanding. Peer-tutoring, where two learners with different skills are paired, can be a mutually enriching experience.

Content areas in Foundation Phase Mathematics

Mathematics in the Foundation Phase covers five content areas:

- Numbers, operations and relationships
- Patterns, functions and algebra
- Shape and space (Geometry)
- Measurement
- Data handling

Each content area contributes towards the acquisition of specific skills. The table in the CAPS document shows the general focus of the content areas in the Mathematics curriculum for all phases, as well as the specific content focus for the Foundation Phase.

Each content area is divided into topics. All the content areas must be taught every term – see the Weekly teaching schedule on the next page.

Please note

In *Study & Master Mathematics Grade 1–3* the activities within each content area are set out in such a way that concepts and skills are scaffolded and developed progressively, allowing educators to determine progression and speed for the various ability level groups in the class.

Weekly teaching schedule

Term	1			
Week	Торіс	Content area/ Module	Activity	LB page
1	• Orientation and Baseline Assessment During this time, select a few appropriate activities from Grade 2 books and do revision and consolidation of Grade 2 work. During the teaching and execution of these activities, the educator should move around among the learners to observe and record the ability levels of the learners.			
2	 Count forward and backwards in: ones from any number with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges hundreds to at least 500 Know and read number symbols and number names Solve number problems and perform calculations Recognise the place value of numbers up to 99 know what each digit represents decompose 2-digit numbers up to 99 into multiples of tens and ones (TU) identify and state the value of each digit Solve number problems and perform calculations – addition 2-D shapes name and group shapes focus on the type of sides distinguish shapes by talking about whether their sides are round or straight draw circles, squares, rectangles and triangles 	1 1 1 1 3	1 13 36 62 1	4, 5 25 48 75 134
3	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges hundreds to at least 500 Know and read number symbols and number names Solve number problems and perform calculations Recognise the place value of numbers up to 99 know what each digit represents decompose 2-digit numbers up to 99 into multiples of tens and ones (TU) identify and state the value of each digit Solve number problems and perform calculations – addition Copy, extend and describe in words: simple patterns made with drawings of lines, shapes or objects 	1 1 1 1 1 2	1 13 36 37 63 1	4, 5 25 48 49 76 123

Term	1	-	-	
Week	Торіс	Content area/ Module	Activity	LB page
4	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges hundreds to at least 500 Know and read number symbols and number names Recognise the place value of numbers up to 99 know what each digit represents decompose 2-digit numbers up to 99 into multiples of tens and ones (TU) identify and state the value of each digit Solve number problems and perform calculations: doubling of numbers Time: telling the time read dates on calendars place birthdays, religious festivals, public holidays, historical events, school events on a calendar 	1 1 1 1	1 13 38 94 13	4, 5 25 50 108 158, 159
5	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges hundreds to at least 500 Know and read number symbols and number names Order and compare numbers up to 99 Solve number problems and perform calculations – subtraction Time: tell 12-hour time on analogue clocks in: hours quarter hours minutes 	1 1 1 1	2 13 21 70 5	6, 7 25 33 83
6	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges hundreds to at least 500 Know and read number symbols and number names Describe, compare, order numbers – odds and evens Solve number problems and perform calculations – subtraction Capacity/volume: estimate and measure, compare and order the amount the capacity of containers (the amount the container can hold if filled) by using non-standard measures such as spoons and cups 	1 1 1 1 1	2 13 26 71 3	6, 7 25 38 84 148

Term	1			
Week	Торіс	Content area/ Module	Activity	LB page
7	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges hundreds to at least 500 Know and read number symbols and number names Recognise the place value of numbers up to 99 know what each digit represents decompose 2-digit numbers up to 99 into multiples of tens and ones (TU) identify and state the value of each digit Repeated addition leading to multiplication Measurement: describe and compare standard and non-standard measuring instruments 	1 1 1 1 1	2 13 39 78 4	6, 7 25 51 91 149
8	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges hundreds to at least 500 Know and read number symbols and number names Repeated addition leading to multiplication Recognise and identify South African coins and bank notes Data handling: collect, organise, represent, analyse and interpret data 	1 1 1 1 5	3 13 79 49 3	8, 9 25 92 61, 62 166
9	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges hundreds to at least 500 Know and read number symbols and number names Fractions: use and name fractions in familiar contexts, including halves, quarters, thirds, fifths recognise fractions in diagrammatic form write fractions as one half, one third Grouping and sharing leading to division Data handling: collect, organise, represent, analyse and interpret data 	1 1 1 1 5	3 13 30 88 1	8, 9 25 42 102 163, 164
10	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges hundreds to at least 500 Know and read number symbols and number names Describe, compare and order numbers: use ordinal numbers to show order, place or position use, read and write ordinal numbers, including abbreviated form, up to 31 Solve number problems in context and explain own solution to problems Analyse and interpret data: answer questions about data 	1 1 1 1 5	3 13 20 103 2	8, 9 25 32 117 165

Term 2				
Week	Торіс	Content area/ Module	Activity	LB page
	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges fifties, hundreds to at least 1 000 Know and read number symbols and number names Recognise the place value of numbers up to 500 know what each digit represents decompose 3-digit numbers up to 500 into multiples of hundreds, tens and ones (HTLI) 	1 1	4 14	10, 11 26
	 identify and state the value of each digit Money recognise and identify South African coins and bank notes 	1	40	52
	 solve money problems involving totals and change in rands or cents Recognise and name 3-D objects in the classroom and in pictures ball shapes (spheres) box shapes (prisms) 	1	50	63
	– cylinders	3	2	135
2	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges fifties, hundreds to at least 1 000 Know and read number symbols and number names 	1	4 15	10, 11 27
	 Recognise the place value of numbers up to 99 know what each digit represents decompose 3-digit numbers up to 500 into multiples of hundreds, tens and ones (HTU) identify and state the value of each digit 	1	41	53
	 Money recognise and identify South African coins and bank notes solve money problems involving totals and change in rands or cents Describe, sort and compare 3-D objects in terms of: 2 D shapes that make up the faces of 2 D shipets 	1	57	70
	- 2-D shapes that make up the faces of 5-D objects	3	3	136

Term	2			
Week	Торіс	Content area/ Module	Activity	LB page
3	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges fifties, hundreds to at least 1 000 Order and compare numbers up to 1 000 Recognise the place value of numbers up to 99 know what each digit represents decompose 3-digit numbers up to 500 into multiples of hundreds, tens and ones (HTU) 	1 1	4 22	10, 11 34
	 identify and state the value of each digit Solve number problems and perform calculations – addition Copy, extend and describe in words simple patterns made with drawings of lines, shapes or objects 	1	36 64	48 77
	– create own patterns	2	2	124
4	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges fifties, hundreds to at least 1 000 Order and compare numbers up to 1 000 Recognise the place value of numbers up to 500 know what each digit represents decompose 3-digit numbers up to 500 into multiples of hundreds, tens and ones (HTU) identify and state the value of each digit Solve number problems and perform calculations – addition Position and views match different views of the same everyday object name an everyday object when shown from an unusual view 	1 1 1 1 3	5 23 42 65 11	12, 13 35 54 78 144
5	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges fifties, hundreds to at least 1 000 Describe, compare, order numbers – odds and evens Solve number problems and perform calculations – subtraction Money recognise and identify South African coins and bank notes solve money problems involving totals and change in rands or cents Time: tell 12-hour time on analogue clocks in: hours half hours quarter hours 	1 1 1	5 27 72 56	12, 13 39 85 69
	– minutes	4	6	151

Term	2			
Week	Торіс	Content area/ Module	Activity	LB page
	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges 			
	 – fifties, hundreds to at least 1 000 • Solve number problems and perform calculations 	1	5	12, 13
6	 doubling of numbers subtraction 	1	95 73	109 86
	 Money recognise and identify South African coins and bank notes 			
	 solve money problems involving totals and change in rands or cents Length estimate measure compare order and record length using non- 	1	57	70
	standard measures such as handspans and paces	4	15	161
	Count forward and backwards in:			
	 ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges fifties, hundreds to at least 1 000 	1	6	14, 15
	 Recognise the place value of numbers up to 99 – know what each digit represents – decompose 3-digit numbers up to 500 into multiples of hundreds, 			
7	tens and ones (HTU) – identify and state the value of each digit	1	43	55
	 Solve number problems and perform calculations repeated addition leading to multiplication Copy, extend and describe simple number sequences 	1	80	93
	counting forward and backwardsMass	2	5	127
	 estimate, measure, compare, order and record mass using a balance and non-standard measures such as blocks and bricks 			
	 use language to talk about the comparison, for example light, heavy and lighter, heavier 	4	2	147
	 Count forward and backwards in: – ones from any number, with increased number ranges 			
	 tens, fives, twos from any multiple of ten, five, two with increased number ranges 			
8	– hundreds to at least 500Solve number problems and perform calculations	1	6	14, 15
	– halving of numbers	1	96	110
	Repeated addition leading to multiplication	1	81	94
	 Data handling: collect, organise, represent, analyse and interpret data Length: estimate, measure, compare, order and record length using 	5	4	167
	standard measures	4	1	146

Term 2				
Week	Торіс	Content area/ Module	Activity	LB page
9	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges hundreds to at least 500 Fractions use and name fractions in familiar contexts including halves, quarters thirds, fifths recognise fractions in diagrammatic form write fractions as one half, one third Solve number problems and perform calculations round off numbers 	1	6 31 99	14, 15 43 113
	 Found off numbers Solve number problems and perform calculations grouping and sharing leading to division Copy, extend and describe in words: simple patterns made with physical objects simple patterns made with drawings of lines, shapes or objects create own patterns 	1	89 3, 4	103 125, 126
10	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges hundreds to at least 500 Solve number problems and perform calculations round off numbers Solve number problems and perform calculations grouping and sharing leading to division Solve number problems in context and explain own solution to problems Analyse and interpret data: answer questions about data Symmetry 	1 1 1 1 5	6 100 90 104 5	14, 15 114 104 118 168
	 determine line of symmetry through paper folding and reflection 	3	9	142

Term	3			
Week	Торіс	Content area/ Module	Activity	LB page
	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges 20s, 25s, 50s, 100s to at least 1 000 Know and read number symbols and number names Recognise the place value of numbers up to 750 know what each digit represents decompose 3-digit numbers up to 500 into multiples of hundreds, tens and enses (UTLI) 	1 1	7, 10 16	16, 20, 21 28
I	tens and ones (HTU) – identify and state the value of each digit	1	44	56
	 Money recognise and identify South African coins and bank notes solve money problems involving totals and change in rands or cents 2-D shapes learners focus on the kind of sides that each shape has. They distinguish shapes by talking about whether their sides are round or straight. 	1	51, 52	64, 65
		2	7, 8	129, 130
2	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges 20s, 25s, 50s, 100s to at least 1 000 Know and read number symbols and number names Recognise the place value of numbers up to 750 know what each digit represents decompose 3-digit numbers up to 500 into multiples of hundreds, tens and ones (HTU) identify and state the value of each digit Money recognise and identify South African coins and bank notes solve money problems involving totals and change in rands or cents 3-D objects: describe, sort and compare 3-D objects in terms of 	1 1 1	7, 10 17 45 53	16, 20, 21 29 57 66
	2-D shapes that make up the faces of 3-D objects	3	4	137
3	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges 20s, 25s, 50s, 100s to at least 1 000 	1	7.10	16, 20, 21
	 Order and compare numbers up to 1 000 Recognise the place value of numbers up to 750 know what each digit represents decompose 3-digit numbers up to 500 into multiples of hundreds, tens and ones (HTU) 	1	24	36
	 identify and state the value of each digit Geometric patterns: copy, extend and describe in words simple patterns made with drawings of lines, shapes or objects 	1	46	58
	 create own patterns 	2	3, 4	125, 126

Term	3			
Week	Торіс	Content area/ Module	Activity	LB page
4	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges 20s, 25s, 50s, 100s to at least 1 000 Order and compare numbers up to 1 000 Solve number problems and perform calculations – addition Recognise the place value of numbers up to 750 know what each digit represents decompose 3-digit numbers up to 500 into multiples of hundreds, tens and ones (HTU) identify and state the value of each digit Position: orientation and views; position and directions follow directions from one place to another on an informal map 	1 1 1 1 3	8 ,10 25 61, 66 45 12	17, 20, 21 37 74, 79 57 145
5	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges 20s, 25s, 50s, 100s to at least 1 000 Describe, compare and order numbers – odds and evens Solve number problems and perform calculations – addition Recognise the place value of numbers up to 750 know what each digit represents decompose 3-digit numbers up to 500 into multiples of hundreds, tens and ones (HTU) identify and state the value of each digit 	1 1	8, 10 28 67	17, 20, 21 40 80
	 Money recognise and identify South African coins and bank notes solve money problems involving totals and change in rands or cents Time: tell 12-hour time on analogue clocks/digital clocks in: hours half hours quarter hours minutes 	1	58	71 152
6	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges 20s, 25s, 50s, 100s to at least 1 000 Solve number problems and perform calculations – subtraction Money recognise and identify South African coins and bank notes solve money problems involving totals and change in rands or cents Time: tell 12-hour time on analogue clocks/digital clocks in: hours half hours quarter hours 	1 1 1	8 , 10 74 59	17, 20, 21 87 72
	– quarter nours – minutes	4	8	153

Term	3			
Week	Торіс	Content area/ Module	Activity	LB page
7	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges 20s, 25s, 50s, 100s to at least 1 000 Solve number problems and perform calculations – subtraction Solve number problems and perform calculations halving of numbers Solve number problems and perform calculations equivalence of numbers 3-D objects – observe and build given 3-D objects using concrete materials such as cut out 2-D shapes, clay, toothpicks, straws and other 3-D geometric objects Time – calculate lengths of time and passing of time 	1 1 1 1 1 3 4	9 10 75 97 105 7 9	18, 19 20, 21 88 111 119 140 154
8	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges 20s, 25s, 50s, 100s to at least 1 000 Solve number problems and perform calculations halving of numbers Solve number problems and perform calculations repeated addition leading to multiplication Fractions: use and name fractions in familiar contexts including halves, quarters thirds, fifths recognise fractions in diagrammatic form write fractions as one half, one third Data handling reorganise data provided in a list or tally or table into a bar graph analyse and interpret data 	1 1 1 1 1 5	9 10 98 82 32 6	18, 19 20, 21 112 95 44 169
9	 Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges 20s, 25s, 50s, 100s to at least 1 000 Fractions: use and name fractions in familiar contexts including halves, quarters thirds and fifths recognise fractions in diagrammatic form write fractions as one half, one third Solve number problems and perform calculations, round off numbers Solve number problems and perform calculations – repeated addition leading to multiplication Number patterns: copy, extend and describe in words sequences should show counting forward and backward 	1 1 1 1 1 2 1	9 10 33 100 83 5 106, 107, 108	18, 19 20, 21 45 114 96 127 120, 121, 122
10	 It is advisable to use the final week of the term to consolidate, revise, reskills learnt during the course of the term and earlier in the year. Also do final oral, practical and written assessment of learners in need of the term and the second secon	emediate and of more atten	extend conce	epts and

Term	4			
Week	Торіс	Content area/ Module	Activity	LB page
	 Count to at least 1 000 everyday objects reliably; give a reasonable estimate of a number of objects that can be checked by counting Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased 	1	12	24
	number ranges – 20s, 25s, 50s, 100s to at least 1 000	1	7, 8, 9, 11	16, 17, 18-22
1	 Know and read number symbols and number names Recognise the place value of numbers up to 999 know what each digit represents 	1	18	30
I	 decompose 3-digit numbers up to 500 into multiples of nundreds, tens and ones (HTU) identify and state the value of each digit 	1	47	59
	 Solve number problems and perform calculations 			
	 repeated addition leading to multiplication 3-D objects 	1	84	97
	 work with spheres, prisms, cylinders, pyramids and cones focus on the kind of surfaces on each type of object distinguish surfaces according to whether they are curved or flat talk about the flat surfaces on prisms and cylinders and describe 			
	them according to whether they are circular, square, rectangular or triangular	3	5	138
	 Count to at least 1 000 everyday objects reliably; give a reasonable estimate of a number of objects that can be checked by counting Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased 	1	12	24
	– 20s, 25s, 50s, 100s to at least 1 000	1	7, 8, 9, 11	16, 17, 18, 20
2	 Know and read number symbols and number names Recognise the place value of numbers up to 999 know what each digit represents decompose 3-digit numbers up to 500 into multiples of hundreds, tens and ones (HTLI) 	1	19	31
	 identify and state the value of each digit 	1	48	60
	 Solve number problems and perform calculations repeated addition leading to multiplication 	1	85	98
	 Money recognise and identify South African coins and bank notes solve money problems involving totals and change in rands or cents 			
	 3-D objects: cescribe, sort and compare 3-D objects in terms of 2-D shapes that make up the faces of 3-D objects 	1	54	67
	,	3	6	139

Term	4			
Week	Торіс	Content area/ Module	Activity	LB page
	 Count to at least 1 000 everyday objects reliably; give a reasonable estimate of a number of objects that can be checked by counting Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges 	1	12	24
	– 20s, 25s, 50s, 100s to at least 1 000	1	7, 8, 9, 11	16, 17, 18, 22
3	 Order and compare numbers up to 1 000 Solve number problems and perform calculations addition Recognise the place value of numbers up to 999 know what each digit represents identify and state the value of each digit 	1	29	41
	use place value when performing calculationsGeometric patterns: copy, extend and describe in words	1	68	81
	 simple patterns made with drawings of lines, shapes or objects create own patterns 	2 2	10 11	132 133
	 Count to at least 1 000 everyday objects reliably; give a reasonable estimate of a number of objects that can be checked by counting Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased 	1	12	24
	number ranges – 20s, 25s, 50s, 100s to at least 1 000 • Solve number problems and perform calculations	1	7, 8, 9, 11	16, 17, 18, 22
4	 addition Recognise the place value of numbers up to 999 know what each digit represents identify and state the value of each digit 			
	 use place value when performing calculations Number patterns: copy, extend and describe in words 	1	69	82
	 sequences should show counting forward and backward Mass 	2	7	129
	 estimate, measure, compare, order and record mass using a balance and non-standard measures such as blocks and bricks use language to talk about the comparison for example light heavy 			
	 use language to taik about the comparison, for example light, heavy or lighter, heavier Data handling 	4	14	160
	 reorganise data provided in a list or tally or table into a bar graph analyse and interpret data 	5	7	170

Term	4			
Week	Торіс	Content area/ Module	Activity	LB page
	 Count to at least 1 000 everyday objects reliably; give a reasonable estimate of a number of objects that can be checked by counting Count forward and backwards in: ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased 	1	12	24
	number ranges – 20s, 25s, 50s, 100s to at least 1 000	1	7, 8, 9, 11	16, 17, 18, 22
5	 Solve number problems and perform calculations – subtraction Recognise the place value of numbers up to 999 know what each digit represents identify and state the value of each digit 			
	 use place value when performing calculations 	1	76	89
	• Solve number problems and perform calculations – number lines	1	102	116
	 Money recognise and identify South African coins and bank notes solve money problems involving totals and change in rands or cents 			
	• Time: tell 24-hour time	1	55 10	68 155
	 Count to at least 1 000 everyday objects reliably; give a reasonable estimate of a number of objects that can be checked by counting Count forward and backwards in: 	1	12	24
	 ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges 20s, 25s, 50s, 100s to at least 1 000 	1	7, 8, 9, 11	16, 17,
6	 Solve number problems and perform calculations addition and subtraction Recognise the place value of numbers up to 999 know what each digit represents 			18, 22
	 identify and state the value of each digit 			
	 use place value when performing calculations Solve number problems and perform calculations multiplication 	1	86	90 00
	 Money recognise and identify South African coins and bank notes 		80	33
	solve money problems involving totals and change in rands or centsTime: solve time problems	1 4	60 11	73 156
	 Count to at least 1 000 everyday objects reliably; give a reasonable estimate of a number of objects that can be checked by counting Count forward and backwards in: 	1	12	24
	 ones from any number, with increased number ranges tens, fives, twos from any multiple of ten, five, two with increased number ranges 			
7	– 20s, 25s, 50s, 100s to at least 1 000	1	7, 8, 9, 11	16, 17, 18, 22
	 Solve number problems and perform calculations rounding off numbers 	1	101	115
	Solve number problems and perform calculations – multiplication	1	87	100
	Number patterns with fractions	2	8	130
	• Time: facts about calendars	4	12	157

Term	4			
Week	Торіс	Content area/ Module	Activity	LB page
	 Count to at least 1 000 everyday objects reliably; give a reasonable estimate of a number of objects that can be checked by counting Count forward and backwards in: ones from any number, with increased number ranges 	1	12	24
	 tens, fives, twos from any multiple of ten, five, two with increased number ranges 20s, 25s, 50s, 100s to at least 1 000 Solve number problems and perform calculations 	1	7, 8, 9, 11	16, 17, 18, 22
8	 multiplication and division Fractions use and name fractions in familiar contexts including halves 			
	quarters, thirds, fifths – recognise fractions in diagrammatic form	1	91	105
	write fractions as one half, one thirdArea	1	34	46
	investigate an area using tilingData handling	4	16	162
	 reorganise data provided in a list or tally or table into a bar graph analyse and interpret data 	5	8	171
	 Count to at least 1 000 everyday objects reliably; give a reasonable estimate of a number of objects that can be checked by counting Count forward and backwards in: ones from any number, with increased number ranges 	1	12	24
	 tens, fives, twos from any multiple of ten, five, two with increased number ranges 20c. 25c. 50c. 100c to at least 1,000 	1	7 9 0 11	16 17
	Fractions		7, 8, 9, 11	18, 22
9	 use and name fractions in familiar contexts including halves, quarters, thirds, fifths recognise fractions in diagrammatic form 			
	 write fractions as one half, one third Solve number problems and perform calculations 	1	35	47
	 Solve humber problems and perform calculations multiplication and division Number patterns: copy, extend and describe in words 	1	92, 93	106, 107
	 sequences should show counting forward and backward Shape and space: symmetry 	2 3	9 10	131 143
	 Data handling – fun with graphs 	5	9	172
	Revision: number bonds	1	106, 107, 108	120, 121, 122
10	• It is advisable to use the final week of the term to consolidate, revise, revise, revise, skills learnt during the course of the term and earlier in the year.	mediate and e	extend concep	ots and
	• Also do final oral, practical and written assessment of learners in need of	f more attenti	on.	

The Weekly teaching schedule shows how the content areas can be spread and revisited throughout the year. You may choose to sequence and pace the topics in each content area differently from the way the teaching schedule does this. If you do, it is important to bear in mind the relative weighting and notional hours of the content areas when you plan your teaching schedule for each topic.

Weighting of content areas

Mathematics content areas are weighted for two purposes: *firstly* the weighting gives guidance on the amount of time needed to adequately cover the content in each content area; *secondly* the weighting gives teachers guidance on the spread of content in the examination (especially in the end-of-year summative assessment).

The weighting of the content is not the same for each grade in the Foundation Phase. The table below shows the different weightings, per grade.

	Weightin	ig of conte	ent areas
Content area	Grade 1	Grade 2	Grade 3
Numbers, operations and relationships*	65%	60%	58%
Patterns, functions and algebra	10%	10%	10%
Space and shape (geometry)	11%	13%	13%
Measurement	9%	12%	14%
Data handling (statistics)	5%	5%	5%
	100%	100%	100 %

Table 2: Weighting of content areas inFoundation Phase Mathematics

* In Grades 1–3, Numbers, operations and relationships are the main focus of mathematics. By the end of the Foundation Phase learners need to have a secure number sense and operational fluency that they can take with them into the next phase. The aim is for learners to be competent and confident with numbers and calculations. For this reason the notional time allocated to the Numbers, operations and relationships content area has been increased. Most of the work on patterns in the Patterns, functions and algebra content area should focus on Number patterns, to further consolidate learners' ability to work with numbers. The section 'Allocation of teaching time' in Part 2 below gives more information about how your teaching time should be organised to cover all the content areas in the course of the year.

Progression in content areas across the Foundation Phase

In the Foundation Phase Mathematics curriculum, links are created between the learners' experience gained in their pre-school and home life, and the more abstract mathematics they will encounter in later grades. In Grades 1–3 they should have many mathematical experiences that give them opportunities to "do, talk and record" their mathematical thinking. Suggestions for planning and organising these types of classroom mathematical experiences are given in Part 2 of this *Teacher's Guide*.

Learners develop their skills and knowledge in each content area in a careful progression from Grade R to Grade 3. The **Phase overview** gives an overview of this progression for the whole Foundation Phase.

Num	lbers, operation	is and relationships • Number	concept development		Grade 1
Coun	t with whole nu	nbers			
Mod	Topics	Term 1	Term 2	Term 3	Term 4
1	Count objects	Count concrete objects	Count out objects reliably to 20	Count out objects reliably to 40	Count out objects reliably to 50
		Give a reasonable estimate of a number of objects that can be	Give a reasonable estimate of a number of objects that can be	Give a reasonable estimate of a number of objects that can be	Give a reasonable estimate of a number of objects that can be
		checked by counting.	checked by counting.	checked by counting.	checked by counting.
-	Count forwards and backwards	Count forwards and backwards in: • ones from any number between 1 and 20	Count forwards and backwards in • ones from any number between 0–50 Count forwards in • tens from any multiple of 10 between 0 and 50 • twos from any multiple of 2 between 0 and 20 between 0 and 20	 Count forwards and backwards in ones from any number between 0-80 Count forwards in tens from any multiple of 10 between 0 and 80 fives from any multiple of 5 between 0 and 80 twos from any multiple of 2 between 0 and 80 	 Count forwards and backwards in ones from any number between 0-100 Count forwards in tens from any multiple of 10 between 0 and 100 fives from any multiple of 5 between 0 and 100 twos from any multiple of 2 between 0 and 100
	Content	Term 1	Term 2	Term 3	Term 4
Repre	esent whole num	bers			
	Number symbols and number names	 Know and read numbers Know and read number symbols 0 to 20 Write number symbols 0-5 Know and read number names 0-5 Write number names 0-5 	 Know and read numbers Know and read number symbols 0 to 50 Write number symbols 0-10 Know and read number names 0-10 Write number names 0-10 	 Know and read numbers Know and read number symbols 0 to 80 Write number symbols 0-20 Know and read number names 0-10 Write number names 0-10 	 Know and read numbers Know and read number symbols to 100 Write number symbols 0-20 Know and read number names 0-10 Write number name 0-10
Ordei	r and compare w	hole numbers	1		
-	Describe, compare, order numbers	 Order and compare objects Compare collection of objects according to many, few; most, least; more than, less than; the same as, just as many as, different Order collection of objects from most to least and least to most. Range up to 5 objects Order and compare numbers to 5 	 Order and compare objects Compare collection of objects according to many, few; most, least more than, less than; the same as, just as many as, different Order collection of objects from most to least and least to most. Range up to 10 objects Order and compare numbers to 10 	 Order and compare objects Compare collection of objects according to many, few; most, least more than, less than; the same as, just as many as, different Order collection of objects from most to least and least to most. Range up to 15 objects Order and compare numbers to 15 	 Order and compare objects Compare collection of objects according to many, few; most, least; more than, less than; the same as, just as many as, different Order collection of objects from most to least and least to most. Range up to 20 objects Order and compare numbers to 20

Phase overview

	Describe, compare, order numbers (continued)	 Order numbers: from smallest to greatest and greatest to smallest number line 1–5 Describe order using language e.g. before, after, in the middle/ between Compare whole numbers using language, for example according to smaller than, greater than/more than less than greater than/more than less than first to tenth or first to last, for example first, second third, last (ordinal numbers) Ordinal aspect of numbers in the range first to fitth 	 Order numbers: from smallest to greatest and greatest to smallest before, after, in the middle/ between using the number line 0–50 using the number line 0–50 Compare whole numbers according to smaller than, greater than/more than, less than, is equal to one-to-one correspondence number range up to 10 Use ordinal numbers to show order, place or position Position objects in a line from first to tenth or first to last, for example first, second, third, fourth, fifth, last (ordinal numbers) Ordinal aspect of numbers in the range first to tenth 	Order numbers: • from smallest to greatest and greatest to smallest between • using the number line 0–80 Compare whole numbers according to smaller than, greater than, more than, less than, is equal to • one-to-one correspondence • number range up to 15 Use ordinal numbers to show order, place or position • Position objects in a line from first to tenth or first to last, for example first, second, third tenth, last (ordinal numbers in the range first to tenth	 Order numbers: from smallest to greatest and greatest to smallest before, after, in the middle/ between using the number line 0-100 using the number line 0.000 compare whole numbers according to smaller than, greater than, more than, less than, is equal to one-to-one correspondence number range up to 20 Use ordinal numbers to show order, place or position Position objects in a line from first to tenth or first to last, for example first, second, third tenth, last (ordinal numbers in the range to first to tenth
Place	value				
1	Place value			Recognise the place value of at least 2-digit numbers up to 15 • Partition 2-digit numbers into tens and ones up to 80, for example 12 is 10 and 2	Recognise the place value of at least 2-digit numbers up to 20Partition 2-digit numbers into tens and ones up to 99, for example 19 is 10 and 9
Solve	number probler	ns			
1	Problem- solving techniques	 Use the following techniques when solving problems, and explain solutions to problems: concrete apparatus such as counters pictures to draw the story sum number lines 	 Use the following techniques when solving problems, and explain solutions to problems: concrete apparatus such as counters pictures to draw the story sum building up and breaking down numbers doubling and halving number lines 	 Use the following techniques when solving problems, and explain solutions to problems: concrete apparatus such as counters pictures to draw the story sum building up and breaking down numbers doubling and halving number lines 	 Use the following techniques when solving problems, and explain solutions to problems: concrete apparatus, e.g. counters pictures to draw the story sum building up and breaking down numbers doubling and halving number lines sharing strategies with peers

1	Addition, subtraction	Practically solve word problems in context and explain own solution to problems involving addition and subtraction, with answers up to 5	Solve word problems in context and explain own solution to problems involving addition and subtraction, with answers up to 10	Solve word problems in context and explain own solution to problems involving addition and subtraction, with answers up to 15	Solve word problems in context and explain own solution to problems involving addition and subtraction, with answers up to 20
	Repeated addition leading to multiplication		Solve word problems in context and explain own solution to problems involving repeated addition, with answers up to 10	Solve word problems in context and explain own solution to problems involving repeated addition, with answers up to 15	Solve word problems in context and explain own solution to problems involving repeated addition, with answers up to 20
1	Grouping and sharing leading to division	Solve and explain solutions to practical problems involving equal sharing and grouping with whole numbers up to 5, and with answers that can include remainders	Solve and explain solutions to practical problems involving equal sharing and grouping with whole numbers up to 10, and with answers that can include remainders	Solve and explain solutions to practical problems involving equal sharing and grouping with whole numbers up to 15, and with answers that can include remainders	Solve and explain solutions to practical problems involving equal sharing and grouping with whole numbers up to 20, and with answers that can include remainders
1	Money		Recognise and identify South African currency • coins: 5c, 10c, 20, 50c, R1, R2 Solve money problems involving totals and change to R10, and in cents up to 20c cents	Recognise and identify South African currency • coins: 5c, 10c, 20, 50c, R1, R2 Solve money problems involving totals and change to R20, and in cents up to 20c cents	Recognise and identify South African currency • coins: 5c, 10c, 20, 50c, R1, R2 • notes: R10 and R20 Solve money problems involving totals and change in cents up to 50c, or rands up to R20
Calcu	lations		-		
	Methods or strategies	Use the following technique when performing calculations:number lines supported by concrete apparatus such as counting beads	Use the following techniques when performing calculations:building up and breaking down numbersdoubling and halving	Use the following techniques when performing calculations:building up and breaking down numbersdoubling and halving	Use the following techniques when performing calculations:building up and breaking down numbersdoubling and halving
	Addition and subtraction	Number range: 0–5 • add up to 5 • subtract from 5 • practise number bonds up to 5	 Number range: 0-10 add up to 10 subtract from 10 use appropriate symbols (+, -, =, ×) practise number bonds up to 7 	 Number range: 0–15 add up to 15 subtract from 15 use appropriate symbols (+, -, =, ×) practise number bonds up to 9 	 Number range: 0-20 add up to 20 subtract from 20 use appropriate symbols (+, -, =, ×) practise number bonds up to 10
1	Repeated addition leading to multiplication		<pre>Repeated addition (that is, the same number) up to 10 • use appropriate symbols (+, -, =, x)</pre>	Repeated addition (that is, the same number) up to 10 • use appropriate symbols (+, -, =, x)	<pre>Repeated addition (that is, the same number) up to 20 • use appropriate symbols (+, -, =, x)</pre>

 Number concept: range 20 order a given set of selected numbers. compare numbers up to 100 and say which is more or less know which number is one more or one less than a given number know which number is 10 more or two less than a given number know which number is 10 more or 10 less than a given number. Rapidly recall: number bonds up to 10 addition and subtraction facts up to 10 up the larger number first in order to count forward or to count backward number line number line Building and halving 	•	 Copy, extend and describe simple number sequences up to at least 100 Sequences should show counting forward and backward in: ones from any number between and 100 tens from any multiple of 10 between 0 and 100 fives from any multiple of 5 between 0 and 100 twos from any multiple of 2 between 0 and 100
 Number concept: range 15 order a given set of selected numbers. compare numbers up to 15 and say which is more or less know which number is one more or one less than a given number Know which number is two more or two less than a given number Rapidly recall: number bonds up to 5 addition and subtraction facts up to 5 Use calculation strategies to add and subtract efficiently: put the larger number first in order to count forward or to count backward number line doubling and halving 	•	 Copy, extend and describe simple number sequences up to at least 80 Sequences should show counting forward and backward in: ones from any number between 1 and 80 tens from any multiple of 10 between 0 and 80 fives from any multiple of 5 between 0 and 80 twos from any multiple of 2 between 0 and 80 twos from any multiple of 2 between 0 and 80
Number concept: range 10 • order a given set of selected numbers. • compare numbers up to 10 and say which is more or less • know which number is one more or one less than a given number or two less than a given number or two less than a given number		Copy, extend and describe simple number sequences up to at least 50 Sequences should show counting forward and backward in: • ones from any number between 1 and 50 • tens from any multiple of 10 between 0 and 50 • fives from any multiple of 5 between 0 and 50 • twos from any multiple of 2 between 0 and 20
Number concept: range 10 • order a given set of selected numbers. • compare numbers up to 10 and say which is more or less • know which number is one more or one less than a given number or two less than a given number	id algebra	Copy, extend and describe simple number sequences up to at least 20 Sequences should show counting forward and backward in: • ones from any number between 1 and 20
1 Mental strategies for doing calculations	Patterns, functions and	2 Number patterns

Patterns all around us Identify, describe in words and copy geometric patterns: • in nature • from everyday life • from our cultural heritage		 Range of objects Recognise and name 3-D objects in the classroom and in pictures ball shapes (spheres) box shapes (prisms) Features of objects box shapes (prisms) Features of objects box shapes (prisms) features of objects box shapes (prisms) e objects in terms of: objects that roll objects that slide match different views of the same every day object
 Copy, extend and describe in words: simple patterns made with physical objects simple patterns made with drawings of lines, shapes or objects Range of patterns Simple repeating patterns Create own geometric patterns: with physical objects by drawings lines, shapes or objects objects 		 Range of objects Recognise and name 3-D objects in the classroom and in pictures ball shapes (spheres) box shapes (prisms) box shapes (prisms) Features of objects Describe, sort and compare 3-D objects in terms of: 3-D objects in terms of: size colour objects that roll objects that slide
 Copy, extend and describe in words: simple patterns made with physical objects simple patterns made with drawings of lines, shapes or objects Range of patterns Simple repeating patterns: with physical objects by drawings lines, shapes or objects objects 	•	
Copy and extend simple patterns using: • physical objects • drawings (for example, using colours and shapes) Range of patterns Simple repeating patterns Simple repeating patterns Start with copying and extending patterns using physical objects. Once learners are comfortable with using a crayon or pencil, they start copying and extending patterns by drawing them.		 Language of position Describe the position of one object in relation to another, for example on top of, in front of, behind, left, right, up, down, next to Position and directions follow directions to move around the classroom follow instructions to place one object in relation to another, for example, put the pencil inside the box
2 Geometric patterns	Shape and space	3 Position, orientation and views

	Position, orientation	Suggested focus sequencing of work for Term 1	Suggested focus and sequencing of activities for Term 3	Suggested focus and sequencing of work for Term 4
	and views (continued)	Language of position should be introduced through practical activities that involve learners in physical movement.	Learners work with balls and objects shaped like balls, and various boxes and other objects shaped like rectangular prisms or cubes.	Work on position and direction can be consolidated through written recording such as drawing, colouring or matching drawings with words.
		This can be consolidated through written recording such as drawing, colouring or matching drawings with words. Learners should first learn some language of position and then apply this knowledge when following directions.	Learners investigate which of the objects can roll, which can slide, and which can be stacked. Learners identify and describe geometric and everyday objects by saying whether they are shaped like a ball or whether they are shaped like a box.	Any new language of position should be introduced through practical activities that involve learners in physical movement. Directions should be done through practical activities in which learners move themselves or objects according to instructions
		Directions should be done through practical activities in which learners move themselves or objects according to instructions.	Work is consolidated through written exercises.	,
ω	3-D objects	 Range of objects Recognise and name 3-D objects in the classroom and in pictures ball shapes (spheres) box shapes (prisms) 	 Range of objects Recognise and name 3-D objects in the classroom and in pictures ball shapes (spheres) box shapes (prisms) 	Range of objects Recognise and name 3-D objects in the classroom and in pictures • ball shapes (spheres) • box shapes (prisms)
		 Features of objects Describe, sort and compare 3-D objects in terms of: size colour 	 Features of objects Describe, sort and compare 3-D objects in terms of: size colour objects that roll objects that slide 	 Features of objects Describe, sort and compare 3-D objects in terms of: size colour objects that roll objects that slide
		Focussed activities observe and build given 3-D objects using concrete materials such as building blocks, recycling and construction kits 		

Suggested focus for Term 4 Work is consolidated through written exercises.	Range of shapesRecognise and name 2-D shapes:• circles• triangles• triangles• squaresFeatures of shapesDescribe, sort and compare2-D shapes in terms of:• size• colour• straight sides• round sides
Suggested focus and sequencing of activities for Term 3 Learners work with balls and objects shaped like balls, and various boxes and other objects shaped like rectangular prisms or cubes. Learners investigate which of the objects can roll, which can slide, and which can be stacked. Learners identify and describe geometric and everyday objects by saying whether they are shaped like a ball or whether they are shaped like a box. Work is consolidated through written exercises.	
	Range of shapes Recognise and name 2-D shapes: • circles • triangles • squares Features of shapes Describe, sort and compare Describe, sort and compare 2-D shapes in terms of: 2-D shapes in terms of: • size • colour • straight sides • round sides
Suggested focus and sequencing of activities for Term 1 Learners start with free play with various 3-D objects and building things of their own choice using building blocks, construction kits or recycling. This can be done in independent time. Learners then copy a model of something the teacher provides. This can be done in independent time. Learners compare the size of similar objects, for example, ordering balls according to size and using the language of size to describe objects. Learners talk about the colours of objects and then sort objects by saying whether they are shaped like a box. Work is consolidated through written exercise.	
3-D objects (continued)	3 2-D shapes

Suggested focus and sequencing of activities for Term 4 Learners work with circles and squares of different sizes, and triangles with different shapes. They sort them according to whether they have straight or round sides. Learners sort and group shapes	according to whether they are triangles, squares, rectangles or circles. Work is consolidated through written exercises			 recognise and draw line of symmetry in 2-D geometrical and non-geometrical shapes
				 recognise symmetry in own body recognise and draw line of symmetry in 2-D geometrical and non-geometrical shape
Suggested focus and sequencing of activities for Term 2 Learners start with free-play with various shapes, including making pictures with cut-out geometric shapes. This can be done in independent time. This can also be done during Life Skills lessons. Learners copy a picture made up of	geometric shapes. Ihis can be done in independent time. This can also be done during Life Skills lessons. Learners compare the size of similar objects, for example, ordering squares from smallest to largest and using the language of size to describe shapes.	Learners talk about the colours of shapes and then sort shapes according to colour. Learners work with circles and squares of different sizes, and triangles with different shapes. They sort them according to whether they have straight or round sides.	Learners sort and group shapes according to whether they are triangles, squares, rectangles or circles. Work is consolidated through written exercises	
2-D shapes (continued)				3 Symmetry

	Symmetry (continued)		 Suggested focus of activities: Term 3 Learners look for lines of symmetry in concrete objects and pictures. Written exercises should not only be drawn in the other half, but include examples where learners draw in the line of symmetry. 	Suggested focus of activities: Term 4 Written exercises should include examples of where the line of symmetry is not a vertical line.
Measu	urement			
4	Time	 Passing of time Talk about passing of time order regular events from their own lives compare lengths of time using language, for example, longer, shorter, faster, slower sequence events using language such as yesterday, today, tomorrow Telling the time describe when something happens using language, for example, morning, afternoon, night, early, late know months of year place weather recording on calendar 	 Passing of time Talk about passing of time order regular events from their own lives compare lengths of time using language, for example, longer, shorter, faster, slower sequence events using language such as yesterday, today, tomorrow Telling the time describe when something happens using language, for example, morning, afternoon, night, early, late know days of week know months of year place weather recording on calendar 	 Passing of time Talk about passing of time order regular events from their own lives compare lengths of time using language, for example, longer, shorter, faster, slower sequence events using language such as yesterday, today, tomorrow Telling the time describe when something happens using language, for example, morring, afternoon, night, early, late know days of week know months of year place weather recording on calendar
4	Length	 Informal measuring compare and order length, height or width of two or more objects by placing them next to each other use language to talk about the comparison, for example, longer, shorter, taller, wider estimate, measure, compare, order and record length using non-standard measures such as handspans, paces, pencil lengths, counters 	Informal measuring estimate, measure, compare, order and record length using non-standard measures such as handspans, paces, pencil lengths, counters 	

4	Mass	Informal measuring		Informal measuring
		 estimate, measure, compare, order and record mass using a balance and non-standard measures such as blocks and bricks 		 estimate, measure, compare, order and record mass using a balance and non-standard measures such as blocks and bricks
		 use language to talk about the comparison, for example, light, heavy, lighter, heavier 		 use language to talk about the comparison, for example, light, heavy, lighter, heavier
4	Capacity/		Informal measuring	
	volume		• compare and order the amount of liquid (volume) in two containers placed next to each other. They check by pouring it into a third container if necessary.	
			 compare and order the amount of liquid that two containers can hold when filled (capacity) 	
			 use language to talk about the comparison, for example, more than, less than, full, empty 	
			 estimate, measure, compare, order and record the capacity of containers by using non-standard measures such as spoons and cups 	
Data	handlina			
5	Collect and sort objects	Collect and organise objects collect and sort everyday 	Collect and organise objects collect and sort everyday 	
		physical objects	physical objects	
	Represent sorted collection of objects	Represent sorted collection of objects • draw a picture of collected objects	Represent sorted collection of objects • draw a picture of collected objects	

			 analyse data from representations provided. Recommended at least two pictographs
	 Recommended Whole data cycle to make class pictograph collect and organise data collect data about the class or school, to answer questions posed by the teacher 	Represent data represent data in pictograph 	Analyse and interpret dataanswer questions about data in pictograph
 Discuss and report on sorted collection of objects give reasons for how collection was sorted answer questions about how the sorting was done (process) what the sorted collection looks like (product) describe the collection and drawing explain how the collection was sorted 			
 Discuss and report on sorted collection of objects give reasons for how collection was sorted answer questions about how the sorting was done (process) what the sorted collection looks like (product) describe the collection and drawing explain how the collection was sorted 			
Discuss and report on sorted collection of objects	Collect and organise data	Represent data	Analyse and Interpret data
ν	S		

Num	bers, operation	is and relationships • Number	concept development		Grade 2	
Count	t with whole nu	nbers				
Mod	Topics	Term 1	Term 2	Term 3	Term 4	
1	Count objects	Count up to at least 100 everyday objects reliably. Give a reasonable estimate of a number of objects that can be checked by counting.	Count up to at least 150 everyday objects reliably. Give a reasonable estimate of a number of objects that can be checked by counting.	Count up to at least 180 everyday objects reliably. Give a reasonable estimate of a number of objects that can be checked by counting.	Count up to at least 200 everyday objects reliably. Give a reasonable estimate of a number of objects that can be checked by counting.	
1	Count forward and backward	 Count forward and backward in: ones from any number between 0 and 100 tens from any multiple of 10 between 0 and 100 fives from any multiple of 5 between 0 and 100 twos from any multiple of 2 between 0 and 100 	 Count forward and backward in: ones from any number between 0 and 150 tens from any multiple of 10 between 0 and 150 fives from any multiple of 5 between 0 and 150 twos from any multiple of 2 between 0 and 150 twos from any multiple of 2 between 0 and 150 and 150 and 150 	Count forward and backward in: • ones from any number between 0 and 180 • tens from any multiple of 10 between 0 and 180 fives from any multiple of 5 between 0 and 180 • twos from any multiple of 2 between 0 and 180 • threes and fours from any multiple of 3 and 4 between 0 and 180	 Count forward and backward in: ones, from any number between tens from any multiple of 10 between 0 and 200 fives from any multiple of 5 between 0 and 200 twos from any multiple of 2 between 0 and 200 threes from any multiple of 3 between 0 and 200 threes from any multiple of 4 between 0 and 200 	
	Content	Term 1	Term 2	Term 3	Term 4	
Repre	sent whole num	bers				
1	Number symbols and number names	 Know and read numbers know and read number symbols 0 to 50 write number symbols 0–50 know and read number names 0–25 write number names 0–25 	 Know and read numbers know and read number symbols 0 to 150 write number symbols 0–150 know and read number names 0–50 write number names 0–50 	 Know and read numbers know and read number symbols 0 to 180 write number symbols 0–180 know and read number names 0–75 write number names 0–75 	 Know and read numbers know and read number symbols 0 to 200 write number symbols 0–200 know and read number names 0–100 write number names 0–100 	
Order	and compare w	hole numbers				
1	Describe, compare, order numbers	 Order and compare numbers up to 25 order whole numbers from smallest to biggest, and biggest to smallest compare whole numbers using smaller than, greater than, more than, less than and is equal to 	 Order and compare numbers up to 50 order whole numbers from smallest to biggest, and biggest to smallest compare whole numbers using smaller than, greater than, more than, less than and is equal to 	 Order and compare numbers up to 50 order whole numbers from smallest to biggest, and biggest to smallest compare whole numbers using smaller than, greater than, more than, less than and is equal to 	 Order and compare numbers up to 99 order whole numbers from smallest to biggest, and biggest to smallest compare whole numbers up to 99 using smaller than, greater than, more than, less than and is equal to 	
		 Recognise the place value of at least 2-digit numbers up to 99 know what each digit represents decompose 2-digit numbers into multiple of tens and ones (TU) identify and state the value of each digit 		 Use the following techniques when solving problem and explaining solutions to problems: drawings or concrete apparatus such as counters building up and breaking down of numbers doubling and halving number lines 	Solve word problems in context and explain own solution to problems involving addition and subtraction with answers up to 100.	Solve and explain solutions to practical problems that involve equal sharing and grouping up to 100, with answers that can include remainders.
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 Use ordinal numbers to show order, place or position position objects in a line from first to tenth or first to last, for example first, second, third tenth (ordinal numbers) 		Recognise the place value of at least 2-digit numbers up to 75 • know what each digit represents • decompose 2-digit numbers into multiple of tens and ones (TU) • identify and state the value of each digit		 Use the following techniques when solving problem and explaining solutions to problems: drawings or concrete apparatus such as counters building up and breaking down of numbers doubling and halving number lines 	Solve word problems in context and explain own solution to problems involving addition and subtraction with answers up to 75.	Solve and explain solutions to practical problems that involve equal sharing and grouping up to 75, with answers that can include remainders.
Use ordinal numbers to show order, place or position • position objects in a line from first to tenth or first to last, for example first, second, third tenth (ordinal numbers)		Recognise the place value of at least 2-digit numbers up to 50 • know what each digit represents • decompose 2-digit numbers into multiple of tens and ones (TU) • identify and state the value of each digit		 Use the following techniques when solving problem and explaining solutions to problems: drawings or concrete apparatus such as counters building up and breaking down of numbers dubling and halving number lines 	Solve word problems in context and explain own solution to problems involving addition and subtraction with answers up to 50.	Solve and explain solutions to practical problems that involve equal sharing and grouping up to 50, with answers that can include remainders.
 Use ordinal numbers to show order, place or position position objects in a line from first to tenth or first to last, for example first, second, third tenth (ordinal numbers) 		 Recognise the place value at least 2-digit of numbers up to 25 know what each digit represents decompose 2-digit numbers into multiples of tens and units/ones (TU) identify and state the value of each digit 	Su	 Use the following techniques when solving problems and explaining solutions to problems: drawings or concrete apparatus such as counters building up and breaking down of numbers doubling and halving number lines 	Solve word problems in context and explain own solution to problems involving addition and subtraction with answers up to 20.	Solve and explain solutions to practical problems that involve equal sharing and grouping up to 20, with answers that can include remainders.
Describe, compare, order numbers (continued)	e value	Place value	e number problen	Problem- solving techniques	Addition, subtraction	Repeated addition leading to multiplication
	Plac	1	Solv	1	1	7

Solve and explain solutions to practical problems that involve equal sharing, leading to solutions that include unitary fractions, for example $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$	 recognise and identify South African coins (5c, 10c, 20c, 50c, R1, R2, R5) and bank notes (R10, R20, R50) solve money problems involving totals, and change in cents up to 50c or rands up to R100 		 Use the following techniques when performing calculations: drawings or concrete apparatus such as counters building up and breaking down numbers doubling and halving number lines 	 add up to 100 subtract from 100 use appropriate symbols (+, -, =, ×) practise number bonds up to 10 	 multiply numbers 1 to 10 by 1, 2, 5, 3 and 4 up to 50 use appropriate symbols (+, -, =, ×)
Solve and explain solutions to practical problems that involve equal sharing, leading to solutions that include unitary fractions, for example $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}$	 recognise and identify South African coins (5c, 10c, 20c, 50c, R1, R2, R5) and bank notes (R10, R20, R50) solve money problems involving totals, and change in cents up to 50c or rands up to R75 		 Use the following techniques when performing calculations: drawings or concrete apparatus such as counters building up and breaking down numbers doubling and halving number lines 	 add up to 75 subtract from 75 use appropriate symbols (+, -, =, ×) practise number bonds up to 10 	 multiply numbers 1 to 10 by 2, 5, 4 up to 50 use appropriate symbols (+, -, =, ×)
Solve and explain solutions to practical problems that involve equal sharing, leading to solutions that include unitary fractions, for example $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$	 recognise and identify South African coins (5c, 10c, 20c, 50c, R1, R2, R5) and bank notes (R10, R20, R50) solve money problems involving totals, and change in cents up to 50c or rands up to R50 		Use the following techniques when performing calculations: • drawings or concrete apparatus such as counters • building up and breaking down numbers • doubling and halving • number lines	 add up to 50 subtract from 50 use appropriate symbols (+, -, =, x) practise number bonds up to 10 	 multiply numbers 1 to 10 by 2, 5, up to 50 use appropriate symbols (+, -, =, ×)
	 recognise and identify South African coins (5c, 10c, 20c, 50c, R1, R2, R5) and bank notes (R10, R20, R50) solve money problems involving totals, and change in cents up to 50c or rands up to R20 		Use the following techniques when performing calculations: • drawings or concrete apparatus such as counters • building up and breaking down numbers • doubling and halving • number lines	 add up to 20 subtract from 20 use appropriate symbols (+, -, =, x) practise number bonds up to 10 	 add the same number repeatedly up to 20 multiply numbers 1 to 10 by 2, 5, 3 and 4 use appropriate symbols (+, -, =, ×)
Sharing leading to fractions	Money	ulations	Techniques (methods or strategies)	Addition and subtraction	Repeated addition leading to multiplication
		Calc	1		

Divisi	on				
1	Mental	Number concept: range 25	Number concept: range 25	Number concept: range 99	Number concept: range 99
	strategies	• order a given set of selected	• order a given set of selected	• order a given set of selected	• order a given set of selected
	for doing	numbers	numbers.	numbers.	numbers.
	calculations	• compare numbers up to 100 and	• compare numbers up to 100 and	 compare numbers up to 200 and 	• compare numbers up to 200 and
		say which is more or less	say which is more or less	say which is more or less	say which is more or less
		• know which number is one more	 know which number is one more 	 know which number is one more 	 know which number is one more
		or one less than a given number	or one less than a given number	or one less than a given number	or one less than a given number
		• know which number is two more	 know which number is two more 	 know which number is two more 	 know which number is two more
		or two less than a given number	or two less than a given number	or two less than a given number	or two less than a given number
		• know which number is 10 more	 know which number is 10 more 	• know which number is three more	 know which number is three more
		or 10 less than a given number	or 10 less than a given number	or three less than a given number.	or three less than a given number.
				• know which number is four more	• know which number is four more
				or four less than a given number	or four less than a given number
				 know which number is five more 	 know which number is five more
				or five less than a given number	or five less than a given number
				• know which number is 10 more	• know which number is 10 more
				or 10 less than a given number	or 10 less than a given number
		Rapidly recall:	Rapidly recall:	Rapidly recall:	Rapidly recall:
		• addition and subtraction facts up to 10	 addition and subtraction facts up to 10 	 addition and subtraction facts up to 15 	 addition and subtraction facts up to 20
				• oddition or cubtuo of on wultivio	 oddition on milturation would when
			-	• addition of subtraction multiples of 10 from 0 to 50	 addition or subtraction multiples of 10 from 0 to 100
		Mental strategies	Mental strategies	Mental strategies	Mental strategies
		Use calculation strategies to add	Use calculation strategies to add	Use calculation strategies to add	Use calculation strategies to add
		and subtract efficiently:	and subtract efficiently:	and subtract efficiently:	and subtract efficiently:
		• put the larger number first in	 put the larger number first in 	 put the larger number first in 	 put the larger number first in
		order to count on or count back	order to count on or count back	order to count on or count back	order to count on or count back
		 mental number line 	 mental number line 	• use the relationship between	• use the relationship between
		 doubling and halving 	 doubling and halving 	addition and subtraction	addition and subtraction
		building up and breaking down	 building up and breaking down 	number line	number line
		 use the relationship between addition and subtraction 	 use the relationship between addition and subtraction 	 acubing and naiving building up and breaking down 	 building and halving building up and breaking down
,					
1	Fractions		 use and name fractions in familiar contexts including 	 use and name fractions in fomiliar contexts including 	 use and name fractions in familiar contexts including
			halves, auarters, thirds and fifths	halves, auarters, thirds and fifths	halves, auarters, thirds and fifths
			 recognise fractions in 	 recognise fractions in 	 recognise fractions in
			diagrammatic form	diagrammatic form	diagrammatic form
			• write fractions as one half, two	• write fractions as one half, two	• write fractions as one half, two
			thirds	thirds	thirds

Shap	e and space				
m	Position, orientation and views		 Language of position describe the position of one object in relation to another, for example on top of, in front of, behind, left, right, up, down, next to Position and views match different views of the same everyday object Position and directions follow directions to move around the classroom 	 Position and views match different views of the same everyday object Position and directions follow directions to move around the classroom 	
<i>ω</i>	3-D objects	 Range of objects Range of objects in the classroom and in pictures ball shapes (prisms) box shapes (prisms) boy state of objects in terms of: a) objects that roll a) objects that slide Focussed activities a) objects that slide Focussed activities boy objects that slide focus and build given 3-D objects recycling, construction kits, other 3-D geometric objects Suggested focus and sequencing of activities for Term 1 Learners copy model of something the teacher provides. Models or construction kits, other 3-D geometric objects, recycling, construction kits, other 3-D geometric objects, cut-out 2-D shapes. This can be done in independent time. 		Range of objects Recognise and name 3-D objects in the classroom and in pictures • ball shapes (spheres) • box shapes (prisms) • cylinders Features of objects Describe, sort and compare 3-D objects in terms of: a.D objects in terms of: a.D objects that roll • objects that slide • objects shaped like scale objects	Range of objects Recognise and name 3-D objects in the classroom and in pictures • ball shapes (spheres) • box shapes (prisms) • cylinders Features of objects Describe, sort and compare 3-D objects in terms of: • size • objects that roll • objects that slide

 Learners work with: balls and objects shaped like balls various boxes and other objects shaped like rectangular prisms or cubes 	I earners investigate which of the	
beditters investigate writch of the objects can roll, which can slide, and which can be stacked. Learners identify and describe geometric and everyday objects by saying whether they are shaped like a ball, shaped like a box, or shaped like a cylinder.	beamers invesugate which can slide, objects can roll, which can slide, and which can be stacked. Learners identify and describe geometric and everyday objects by saying whether they are shaped like a ball, shaped like a box, or shaped like a cylinder.	
Work is consolidated through written exercises	Work is consolidated through written exercises	Work is consolidated through written exercises
Recognise and name 2-D shapes • circles • triangles • squares • squares • squares • rectangles Features of shapes • rectangles Features of shapes • rectangles Features of shapes Describe, sort and compare 2-D shapes in terms of: • size • colour • size • colour • shape • straight sides • round sides	Recognise and name 2-D shapes e circles triangles e squares squares rectangles Features of shapes Features of shapes Describe, sort and compare 2-D shapes in terms of: 2-D shapes in terms of interms of interms of interms of internet shapes. They sort them 2-D shapes in terms of other theorem of other terms of other theorem of other terms of ot	Recognise and name 2-D shapes e circles triangles squares rectangles Features of shapes rectangles Features of shapes Describe, sort and compare Describe, sort and compare 2-D shapes in terms of: size colour size size straight sides round sides round sides Suggested focus and sequencing of activities for Term 4 Learners work with circles and squares of different sizes, and triangles and rectangles with different shapes. They sort them

Learners sort and group shapes according to whether they are triangles, squares, rectangles or circles Work is consolidated through written exercises.	Recognise and draw line of symmetry in 2-D geometrical and non-geometrical shapes Suggested focus of activities for Term 2 Learners should look for lines of symmetry in concrete objects and pictures. Written exercises should include examples of where the line of symmetry is not a vertical line.
Learners sort and group shapes according to whether they are triangles, squares, rectangles or circles. Work is consolidated through written exercises.	
	Recognise and draw line of symmetry in 2-D geometrical and non-geometrical shapes Suggested focus of activities for Term 2 Learners should look for lines of symmetry in concrete objects and pictures. Written exercises should include examples of where the line of symmetry is not a vertical line.
Learners copy a picture made up of geometric shapes. This can be done in independent time. This can also be done during Life Skills lessons. Learners compare the size of similar shapes, for example, ordering rectangles from smallest to biggest and using the language of size to describe shapes. Learners talk about the colours of shapes and then sort shapes according to colour. Learners work with circles and squares of different sizes, and triangles and rectangles with different shapes. They sort them according to whether they have straight sides or round sides. Learners squares, rectangles or circles. Work is consolidated through written exercises.	
2-D shapes (continued)	3 Symmetry

	Telling the time • tell 12-hour time in hours, half hours and quarter hours on analogue clocks	Introducing formal measuring • estimate, measure, order and record length using metres (either metre sticks or metre-long lengths of string) as the standard unit of length
	 Telling the time know days of week know months of year place birthdays, religious festivals, public holidays, historical events, school events on a calendar tell 12-hour time in hours on analogue clocks Calculate lengths of time and passing of time: use calendars to calculate and describe length of time in days or weeks use clocks to calculate length of time in days of time in hours or holic hours 	
	Telling the time • know days of week • know months of year • place birthdays, religious festivals, public holidays, historical events, school events on a calendar • tell 12-hour time in hours on analogue clocks Calculate lengths of time and passing of time: • use clocks to calculate length of time in hours or half hours	
	 Telling the time know days of week know months of year know months of year place birthdays, religious festivals, public holidays, historical events, school events on a calendar tell 12-hour time in hours on analogue clocks 	 Informal measuring estimate, measure, compare, order and record length using non-standard measures such as handspans, paces, pencil lengths and counters describe the length of objects by counting and stating how many informal units it's length is use language to talk about the comparison, for example, longer, shorter, taller, wider Introducing formal measuring estimate, measure, order and record length using metres (either metre sticks or metre-long lengths of string) as the standard unit of length
easurement	Time	Length
Σ	4	4

 Introducing formal measuring Learners do written tasks to consolidate the following, including reading pictures, of: or products with mass written on them pictures of mass on bathroom scales where the needle points to a numbered gradation line 	
	Informal measuring Estimate, measure, compare, order and record the amount the capacity of containers (i.e. the amount the container can hold when filled) by using non-standard measures such as spoons and cups. Describe the capacity of the container by counting and stating how many of the informal units it takes to fill the container, for example, the bottle has a capacity of 4 cups.
 Informal measuring estimate, measure, compare, order and record mass using a balance and non-standard measures such as blocks or bricks use language to talk about the comparison, for example, light, heavy, lighter, heavier Introducing formal measuring compare, order and record the mass of commercially-packaged objects that have their mass stated in kilograms, for example, 2 kilograms of rice and 1 kilograms of rice and 1 kilograms and abalthe, learners can measure their own mass in kilograms using a bathroom scales are available, learners can measure their mass as almost/nearly/close to/a bit more than/more or less or exactly the number (of kilograms) they read off the mass meter. 	
4 Mass	4 Capacity/ volume

			Analyse data from representations provided. Recommended • at least one pictograph
	 Recommended make individual pictographs from data provided in either picture form or table 	Collect and organise data Collect data about the class or school to answer questions posed by the teacher. Represent data • represent data in pictograph	 Analyse and interpret data answer questions about data in pictograph
			Analyse data from representations provided. Recommended • at least one pictograph
	Recommended whole data cycle to make class pictograph 	Collect and organise data Collect data about the class or school to answer questions posed by the teacher. Represent data • represent data in pictograph	 Analyse and interpret data answer questions about data in pictograph
ata handling	Collect and organise data	Represent data	Analyse and interpret data
	Data handling	Data handling Ecommended Recommended 5 Collect and Recommended • make individual pictographs from data provided in either pictograph pictograph picture form or table	Data handling Recommended 5 Collect and organise data whole data cycle to make class pictograph Recommended 6 organise data • whole data cycle to make class • make individual pictographs 7 Represent data • mole data ovided in either picture form or table • make individual pictographs 8 Represent data Collect data about the class or school to answer questions posed by the teacher. Collect data about the class or school to answer questions posed by the teacher. 8 Represent data • represent data • represent data 9 • represent data • represent data

Num	bers, operation	ıs and relationships • Number	concept development		Grade 3
Coun	t with whole nu	mbers			
Mod	Topics	Term 1	Term 2	Term 3	Term 4
1	Count objects	Count up to at least 200 everyday objects reliably. Give a reasonable estimate of a number of objects that can be	Count up to at least 500 everyday objects reliably. Give a reasonable estimate of a number of objects that can be	Count up to at least 750 everyday objects reliably. Give a reasonable estimate of a number of objects that can be	Count up to at least 1 000 everyday objects reliably. Give a reasonable estimate of a number of objects that can be
		checked by counting.	checked by counting.	checked by counting.	checked by counting.
1	Count forward and backward	 Count forward and backward in: the intervals specified in Grade 2 with increased number ranges 100s up to at least 500 	 Count forward and backward in: the intervals specified in Grade 2 with increased number ranges 50s, 100s up to at least 1 000 	 Count forward and backward in: the intervals specified in Grade 2 with increased number ranges 20s. 25s. 50s. 100s to at least 1 000 	 Count forward and backward in: the intervals specified in Grade 2 with increased number ranges 20s. 25s. 50s. 100s to at least 1 000
	Content	Term 1	Term 2	Term 3	Term 4
Repre	sent whole num	ibers			
	Number symbols and number names	 Know and read numbers know and read number symbols 0 to 500 write number symbols 0–500 know and read number names 0-250 write number names 0–100 	 Know and read numbers know and read number symbols 0 to 1 000 write number symbols 0–1 000 know and read number names 0–250 write number names 0–250 	 Know and read numbers know and read number symbols 0 to 1 000 write number symbols 0–1 000 know and read number names 0–500 write number names 0–500 	 Know and read numbers know and read number symbols 0 to 1 000 write number symbols 0–1 000 know and read number names 0–1 000 write number names 0–1 000
Order	and compare w	/hole numbers			
1 Place	Describe, compare, order numbers value	 Order and compare numbers up to 99 order whole numbers up to 99 from smallest to biggest, and biggest to smallest compare whole numbers up to 99 using smaller than, greater than, more than, less than, is equal to Use ordinal numbers to show order, place or position use, read and write ordinal numbers, including in abbreviated form, up to 31 	Order and compare numbers up to 500 • order whole numbers up to 500 from smallest to biggest, and biggest to smallest • compare whole numbers up to 500 using smaller than, greater than, more than, less than, is equal to Use ordinal numbers to show order, place or position • use, read and write ordinal numbers, including in abbreviated form, up to 31	Order and compare numbers up to 750 • order whole numbers up to 750 from smallest to biggest, and biggest to smallest • compare whole numbers up to 750 using smaller than, greater than, more than, less than, is equal to use ordinal numbers to show order, place or position • use, read and write ordinal numbers, including in abbreviated form, up to 31	 Order and compare numbers up to 999 order whole numbers up to 999 from smallest to biggest, and biggest to smallest compare whole numbers up to 999 using smaller than, greater than, more than, less than, is equal to
-	גומרה אמומה				

Solve	number proble	su	-		
1	Problem- solving techniques	 Recognise the place value of numbers up to 99 know what each digit represents decompose 2-digit numbers up to 99 into multiples of tens and ones (TU). identify and state the value of each digit 	Recognise the place value of numbers up to 500 • know what each digit represents • decompose 3-digit numbers up to 500 into multiples of hundreds, tens and ones (HTU) • identify and state the value of each digit	Recognise the place value of numbers up to 750 • know what each digit represents • decompose 3-digit numbers up to 750 into multiple of hundreds, tens and ones (HTU) • identify and state the value of each digit	Recognise the place value of numbers up to 999 • know what each digit represents • decompose 3-digit numbers up to 999 into multiple of hundreds, tens and ones (HTU) • identify and state the value of each digit
-	Addition, subtraction	 Use the following techniques when solving problems: building up and breaking down numbers doubling and halving number lines 	 Use the following techniques when solving problems: building up and breaking down numbers doubling and halving number lines rounding off in tens 	 Use the following techniques when solving problems: building up and breaking down numbers doubling and halving number lines rounding off in tens 	 Use the following techniques when solving problems up to 999 and explaining solutions to problems: building up and breaking down numbers doubling and halving number lines rounding off in tens
1	Repeated addition leading to multiplication	Solve number problems in context and explain own solution to problems involving multiplication with answers up to 50.	Solve number problems in context and explain own solution to problems involving multiplication with answers up to 75.	Solve number problems in context and explain own solution to problems involving multiplication with answers up to 75.	Solve number problems in context and explain own solution to problems involving multiplication with answers up to 100.
1	Grouping and sharing leading to division	Solve and explain solutions to practical problems that involve equal sharing and grouping up to 50, with answers that can include remainders	Solve and explain solutions to practical problems that involve equal sharing and grouping up to 75, with answers that can include remainders	Solve and explain solutions to practical problems that involve equal sharing and grouping up to 75, with answers that can include remainders	Solve and explain solutions to practical problems that involve equal sharing and grouping up to 100, with answers that can include remainders.
-	Sharing leading to fractions	Solve and explain solutions to practical problems that involve equal sharing leading to solutions that include unitary and non-unitary fractions, for example y_2 , y_4 , 3_4	Solve and explain solutions to practical problems that involve equal sharing leading to solutions that include unitary and non-unitary fractions, for example 1_2 , 1_4 , 3_4	Solve and explain solutions to practical problems that involve equal sharing leading to solutions that include unitary and non-unitary fractions, for example y_2 , y_4 , 3_4	Solve and explain solutions to practical problems that involve equal sharing leading to solutions that include unitary and non-unitary fractions, for example y_{λ} , y_{4} , 3_{4}
1	Money	 recognise and identify South African coins and bank notes solve money problems involving totals and change in rands or cents 	 recognise and identify South African coins and bank notes solve money problems involving totals and change in rands or cents 	 recognise and identify South African coins and bank notes solve money problems involving totals and change in rands or cents convert between rands and cents 	 recognise and identify South African coins and bank notes solve money problems involving totals and change in rands or cents convert between rands and cents

Calcu	lations				
1	Techniques (methods or strategies)	 Use the following techniques when performing calculations: building up and breaking down numbers doubling and halving number lines 	 Use the following techniques when performing calculations: building up and breaking down numbers doubling and halving number lines rounding off in tens 	 Use the following techniques when performing calculations: building up and breaking down numbers doubling and halving number lines rounding off in tens 	 Use the following techniques when performing calculations: building up and breaking down numbers doubling and halving number lines rounding off in tens
1	Addition and subtraction	 add up to 99 subtract from 99 use appropriate symbols (+, -, =, x) practise number bonds up to 20 	 add up to 400 subtract from 400 use appropriate symbols (+, -, =, x) practise number bonds up to 30 	 add up to 800 subtract from 800 use appropriate symbols (+, -, =, x) practise number bonds up to 30 	 add up to 999 subtract from 999 use appropriate symbols (+, -, =, x) practise number bonds up to 30
1	Repeated addition leading to multiplication	 multiply numbers 1 to 10 by 2, 5 and 10 use appropriate symbols (+, =, ×) 	 multiply numbers 1 to 10 by 2, 4, 5, 10 use appropriate symbols (+, =, ×) 	 multiply numbers 1 to 10 by 2, 3, 4, 5, 10 use appropriate symbols (+, =, ×) 	 multiply numbers 1 to 10 by 2, 3, 4, 5, 10 use appropriate symbols (+, =, ×)
1	Division	 divide numbers up to 50 by 2, 5 and 10 use appropriate symbols (÷, =, ×) 	 divide numbers up to 50 by 2, 4, 5 and 10 use appropriate symbols (÷, =, ×) 	 divide numbers up to 99 by 2, 4, 5, 10 and 3 use appropriate symbols (÷, =, ×) 	 divide numbers up to 99 by 2, 3, 4, 5 and 10 use appropriate symbols (÷, =, ×)
1	Mental strategies for doing calculations	 Number concept: range up to 200 order a given set of selected numbers compare numbers to 200 and say which is more or less than a given number know which number is one more or one less than a given number is two more or two less than a given number or two less than a given number know which number is two more or two less than a given number know which number is two more or two less than a given number know which number is two more or two less than a given number know which number is two more or two less than a given number is two more or three less than a given number know which number is four more or four less than a given number know which number is four more or five less than a given number know which number is four more or five less than a given number know which number is four more or five less than a given number know which number is four more or five less than a given number know number is 10 more or 10 less than a given number 	Number concept: range up to 500 • order a given set of selected numbers • compare numbers to 500 and say which is more or less than a given number • know which number is one more or one less than a given number • know which number is two more or two less than a given number • know which number is three more or three less than a given number • know which number is four more or four less than a given number • know which number is four more or four less than a given number • know which number is four more or four less than a given number • know which number is four more • or four less than a given number • know which number is four more • know which number is four more • know which number is four more • or four less than a given number • know which number is four number • know number is 10 more or 10 • less than a given number	 Number concept: range up to 750 order a given set of selected numbers compare numbers to 200 and say which is more or less know which number is one more or one less than a given number know which number is two more or two less than a given number know which number is three more or three less than a given number know which number is from or or four less than a given number know which number is four more or four less than a given number know which number is four more or four less than a given number know which number is four more or four less than a given number know which number is four more or four less than a given number know number is 10 more or 10 less than a given number 	Number concept: range up to 999 • order a given set of selected numbers • compare numbers to 1 000 and say which is more or less than a given number • know which number is one more or one less than a given number or two which number is three more or three less than a given number • know which number is four more or four less than a given number number • know which number is four more or four less than a given number • know which number is four more or for less than a given number • know which number is four more or for less than a given number • know which number is four more or five less than a given number • know number is 10 more or 10 less than a given number

	Mental strategies for doing calculations (continued)	Rapidly recall:addition and subtraction facts up to 20adding or subtracting multiples of 10 from 0 to 100	 Rapidly recall: addition and subtraction facts up to 20 adding or subtracting multiples of 10 from 0 to 100 	 Rapidly recall: addition and subtraction facts up to 20 adding or subtracting multiples 10 from 0 to 100 	 Rapidly recall: addition and subtraction facts up to 20 adding or subtracting multiples 10 from 0 to 100 multiplication and division facts for the: two times table up to 2 × 10
		 Mental strategies Use calculation strategies: put the larger number first in order to count on or count back number line doubling and halving building up and breaking down use the relationship between addition and subtraction 	 Mental strategies Use calculation strategies: put the larger number first in order to count on or count back number line doubling and halving building up and breaking down use the relationship between addition and subtraction 	 Mental strategies Use the following calculation strategies: put the larger number first in order to count on or count back number line doubling and halving building up and breaking down use the relationship between addition and subtraction use the relationship between multiplication and division 	 ten times table up to 10 × 10 Mental strategies Use the following calculation strategies: put the larger number first in order to count on or count back number line doubling and halving building up and breaking down use the relationship between addition and subtraction use the relationship between multiplication and division multiplication and division
	Fractions	 use and name fractions in familiar contexts, including halves, quarters, thirds, fifths recognise fractions in diagrammatic form write fractions as one half, one third 	 use and name fractions in familiar contexts, including halves, quarters, eighths, thirds, sixths, fifths recognise fractions in diagrammatic form write fractions as one half, one third 	 use and name fractions in familiar contexts, including halves, quarters, eighths, thirds, sixths, fifths recognise fractions in diagrammatic form diagrammatic form begin to recognise that two halves or three thirds make one whole and that one half and two quarters are equivalent write fractions as one half, one third 	 use and name fractions in familiar contexts, including halves, quarters, eighths, thirds, sixths, fifths recognise fractions in diagrammatic form begin to recognise that two halves or three thirds make one whole and that one half and two quarters are equivalent
Patter	rns, functions ar	ıd algebra			
2	Number patterns	Copy, extend and describe Copy, extend and describe simple number sequences to at least 100.	Copy, extend and describe Copy, extend and describe simple number sequences to at least 150.	Copy, extend and describe Copy, extend and describe simple number sequences to at least 180.	Copy, extend and describe Copy, extend and describe simple number sequences to at least 1 000.

 Sequences should show counting forwards and backwards in: the intervals specified in Grade 2 with increased number ranges 20s, 25s, 50s, 100s up to at least 1 000 Create own number patterns 	Patterns all around us Identify, describe in words and copy geometric patterns: • in nature • from everyday life • from our cultural heritage			
 Sequences should show counting forwards and backwards in: the intervals specified in Grade 2 with increased number ranges 20s, 25s, 50s, 100s up to at least 1 000 Create own number patterns 	 Copy, extend and describe Copy, extend and describe in words: simple patterns made with physical objects simple patterns made with drawings of lines, shapes or objects Range of patterns patterns where the number of shapes in each stage changes in a predictable way, i.e. regular increasing patterns 	Create own geometric patterns:with physical objectsby drawings lines, shapes or objects		 Position and views read, interpret and draw informal maps, or top views of a collection of objects find objects on maps Position and directions follow directions from one place to another on an informal map
 Sequences should show counting forwards and backwards in: the intervals specified in Grade 2 with increased number ranges 50s, 100s up to at least 1 000 	 Copy, extend and describe Copy, extend and describe in words: simple patterns made with physical objects simple patterns made with drawings of lines, shapes or objects Simple repeating patterns patterns where the number of shapes in each stage changes in a predictable way, i.e. regular increasing patterns 	Create own geometric patterns:with physical objectsby drawings lines, shapes or objects		 Position and views match different views of the same everyday object name an everyday object when shown an unusual view of it Position and directions follow directions to move around the classroom and school. give directions to move around the classroom and school
 Sequences should show counting forwards and backwards in: the intervals specified in Grade 2 with increased number ranges 100s up to at least 500 	 Copy, extend and describe Copy, extend and describe in words: simple patterns made with physical objects simple patterns made with drawings of lines, shapes or objects Range of patterns Simple repeating patterns 	Create own geometric patterns:with physical objectsby drawings lines, shapes or objects		
Number patterns (continued)	2 Geometric patterns		Shape and space	3 Position, orientation and views

 Range of objects Range of objects in the classroom and in pictures: ball shapes (spheres) box shapes (prisms) cylinders Features of objects cylinders Features of objects cylinders Features of objects fatures of 3-D objects flat or curved surfaces 	Work is consolidated through written exercises.
 Range of objects Range of objects in the classroom and in pictures: box shapes (prisms) cylinders box shapes (prisms) box shapes (prisms) cylinders Features of objects cylinders Features of objects in terms of: cylinders Features of objects in terms of: cylinders cylinders Features of objects in terms of: cylinders cylinders Features of objects in terms of: cylinders cylinders cylinders cylinders Focussed activities objects using concrete materials such as cut-out 3-D objects using concrete materials such as cut-out 2-D shapes, clay, toothpicks, straws, other 3-D geometric objects straws, other 3-D geometric objects Suggested focus and sequencing of activities for Term 3 Learners work with spheres, pyramids and cones. Learners focus on the kind of surfaces on each type of object. They distinguish between surfaces according to whether they are curved or flat. Then learners talk about the flat surfaces on prisms and cylinders and describe them according to whether they are curved or flat. Then learners talk about the flat surfaces on prisms and cylinders and describe them according to whether they are curved or flat. Then learners talk about the flat surfaces on prisms and cylinders and describe them according to whether they are circular, square, rectangular or triangular. Learners use toothpicks, straws, or rolled paper to make a pyramid. 	Work is consolidated through written exercises.
Range of objects Range of objects in the classroom and in pictures: ball shapes (spheres) box shapes (prisms) cylinders cylinders Features of objects box shapes that make up the faces of 3-D objects in terms of: 2-D shapes that make up the faces of 3-D objects flat or curved surfaces flat or curved or flat. Learners work with spheres, prisms and cylinders as they did in Grade flat or flat. Learners for some them and group them. Learners for some them and group them. Learners to make a box. Then they taken according to whether they are curved or flat. Learners use cut-out cardboard squares to make a box. Then they talk about the flat surfaces on prisms and cylinders and describe them according to whether they are curved or flat. 	Work is consolidated through written exercises.
3-D objects	
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	 recognise and draw line of symmetry in 2-D geometrical and non-geometrical shapes and non-geometrical shapes Suggested focus of Term 4 Written exercises should include examples where: the line of symmetry is not a vertical line there is more than one line of symmetry in the shape or object
 Range of shapes circles triangles squares squares squares squares rectangles rectangles Features of shapes Describe, sort and compare 2-D shapes in terms of: astraight sides straight sides straight sides round sides Suggested focus of activities for Term 3 Learners name and group shapes. Learners name and group shapes. Learners focus on the kind of sides that each shape has. They distinguish between shapes by talking about whether their sides are round or straight. Work is consolidated through written exercises 	
	 determine line of symmetry through paper folding and reflection Suggested focus of Term 2 Paper-folding activities that develop an understanding of symmetry include: activities where wet paint is placed on the page before folding activities where paper is cut or torn from the fold line These activities can be done both in the Maths lesson and the Life Skills lessons
 Range of shapes circles triangles squares squares squares squares rectangles rectangles Features of shapes Describe, sort and compare 2-D shapes in terms of: ashape straight sides straight sides round sides Suggested focus of activities for Term 1 Learners name them and group shapes. Learners focus on the kind of sides that each shape has. They distinguish between shapes by talking about whether their sides are round or straight. Draw circles, squares, rectangles and triangles. 	
3 2-D shapes	3 Symmetry

Measu	rement				
4	Time	 Telling the time read dates on calendars place birthdays, religious festivals, public holidays, historical events, school events on a calendar tell 12-hour time on analogue clocks and digital clocks and other digital instruments that show time (for example cell phones) in: hours hours hours quarter hours minutes 	 Telling the time read dates on calendars place birthdays, religious festivals, public holidays, historical events, school events on a calendar tell 12-hour time on analogue clocks and digital clocks and other digital instruments that show time (for example cell phones) in: hours hours quarter hours minutes 	 Felling the time read dates on calendars place birthdays, religious festivals, public holidays, historical events, school events on a calendar tell 12-hour time on analogue clocks and digital clocks and other digital instruments that show time (for example cell phones) in: hours hours quarter hours minutes 	 Telling the time read dates on calendars place birthdays, religious festivals, public holidays, historical events, school events on a calendar tell 12-hour time on analogue clocks and digital clocks and other digital instruments that show time (for example cell phones) in: hours hours quarter hours minutes
			 calculate lengths of time and passing of time use calendars to calculate and describe lengths of time in days or weeks or months or weeks or months or weeks to calculate length of time in hours or half hours 	 calculate lengths of time and passing of time use calendars to calculate and describe lengths of time in days or weeks or months including converting between days and weeks converting between weeks and month use clocks to calculate length of time in hours, half hours and quarter hours 	 calculate lengths of time and passing of time use calendars to calculate and describe lengths of time in days or weeks or months including converting between days and weeks converting between weeks and month use clocks to calculate length of time in hours, half hours and quarter hours
4	Length		 Informal measuring estimate, measure, compare, order and record length using non-standard measures such as handspans, paces, pencil lengths, counters describe the length of objects by counting and stating how many informal units it's length is use language to talk about the comparison, for example, longer, shorter, taller, wider 		

urring pare, using ks or as the ecord sing a	Introducing formal measuring Learners do written tasks to consolidate the following, including reading pictures of: products with mass written on them • pictures of mass on bathroom scales where the needle points to a numbered gradation line
 Introducing formal meas estimate, measure, comporter and record length metres (either metre sticl metre lengths of string) of standard unit of length estimate, measure and relengths in centimetres us ruler 	
 Introducing formal measuring estimate, measure, order and record length using metres (either metre sticks or metre lengths of string) as the standard unit of length estimate and measure length in centimetres using a ruler No conversions between metres and centimetres required 	 Informal measuring estimate, measure, compare, order and record mass using a balance and non-standard measures such as blocks and bricks use language to talk about the comparison, for example, light, heavy, lighter, heavier Introducing formal measuring compare, order and record the mass of commercially packaged objects that have their mass stated in kilograms (2 kilograms of rice, 1 kilogram of flour) or in grams (500 grams of salt) where bathroom scales are available, learners can measure their own mass in kilograms. The expectation is that learners only read to the nearest numbered gradation line. They describe their mass as almost/nearly/close to/a bit more than/more or less or exactly the number (of kilograms) they read off the mass meter. where balancing scales with mass pieces calibrated in grams can easure available, learners can measure available, learners can measure available, learners can measure.
Length (continued)	Mass

4	Capacity/	Informal measuring • estimate and measure commare	
	AUTINION		
		and order the amount the capacity	
		of containers (i.e. the amount the	
		container can hold when filled) by	
		using non-standard measures such	
		as spoons and cups	
		 describe the capacity of the 	
		container by counting and stating	
		how many of the informal units it	
		takes to fill the container e.g. <i>The</i>	
		bottle has a capacity of 4 cups.	
		Introducing formal measuring	Introducing formal measuring
		Estimate, measure, compare, order	Learners do written tasks to
		and record the capacity of objects by	consolidate the following,
		measuring in litres, half litres and	including reading pictures of:
		quarter litres:	 products with their capacity
		• using bottles with a capacity of	written on them in order to
		1 litre, or containers with capacity	sequence in order
		stated in millilitres, for example	 pictures of jugs where the volume
		cool drink cans	is near to a numbered 1 litre or
		 measuring jugs where numbered 	2 litre gradation line or half litres
		calibration lines show litres, half	or quarter litre
		litres and quarter litres	 pictures of jugs where the volume
		 measuring jugs where numbered 	is near to a numbered millilitres
		calibration lines show millilitres	gradation line The expectation
		(learners are not expected to	is that learners only read to the
		read volumes at unnumbered	nearest numbered gradation line.
		calibration lines)	They describe their volume as
		 measuring cups and teaspoons 	almost/nearly/close to/a bit more
		that indicate their capacity	than/more or less or exactly the
		 compare, order and record the 	number (of litres) they read off
		capacity of commercially packaged	the jug.
		objects with capacity stated in	
		litres (2 litres of milk, 1 litre of cool	
		drink, 5 litres of paint) or millilitres	
		(500 ml of milk, 340 millilitres of	
		cool drink, 750 millilitres of oil)	
		• know that a standard cup contains	
		250 millilitres	
		 know that a teaspoon is 5 millilitres 	

No conversions between millilitres and litres required		Investigate the area using tiling				Analyse data from representations provided. Recommended • at least one pictograph • at least one table
	Investigate the distance around 2-D shapes and 3-D objects using string			 Recommended reorganise data provided in a list or tally or table onto a bar graph collect and organise data collect data about the class or school to answer questions posed by the teacher 	Represent data in bar graph	 analyse and interpret data answer questions about data in bar graph
						Analyse data from representations provided. Recommended • at least one pictograph • at least one table
No conversions between millilitres and litres required				Recommended Whole data cycle to make bar graph Collect and organise data Collect data about the class or school to answer questions posed by the teacher. Use tallies to record data in categories provided.	Represent data in a: • table • bar graph	 analyse and interpret data answer questions about data in bar graph
Capacity/ volume (continued)	Perimeter	Area	ata handling	Collect and organise data	Represent data	Analyse and Interpret data
	4	4	ň	Ś		

Part 2 Planning

Planning and organising your mathematics teaching

The *Teacher's Guide* is an essential component of this series. It gives clear instructions on how to teach the concepts the learners need to master in Grade 3. It also provides guidance on how to use the *Learner's Book* and *Workbook* so that learners can practise the concepts learnt.

Use this *Teacher's Guide* as a starting point and then refer to the *Learner's Book* and *Workbook* when the *Teacher's Guide* instructs you to do so. For the *Workbook* activities the learners should write their answers in the *Workbook*. Provide the learners with sheets of paper or exercise books to complete their activities for the *Learner's Book*.

In the *Teacher's Guide* a section is dedicated to each concept the learners have to grasp. At the beginning of the content area (called "Modules" in the *Learner's Book*) you will see the topics you are dealing with.

Allocation of teaching time

The CAPS allocates teaching time for mathematics as follows:

- 10 weeks per term for 4 terms, with 7 hours for mathematics per week: 10 × 4 × 7 = 280 hours per year
- 5 lessons per week for 10 weeks each term
- 1 lesson per day of 1 hour 24 minutes
- Allow one week at the start of each term for orientation and consolidation, to help children who have forgotten a lot of the content during the holidays.
- Allow a further week at the beginning of each term to consolidate concepts and knowledge that will be a baseline for the next phase of teaching and learning during the term.
- This leaves 4 terms of 8 weeks each with 5 lessons per week: $4 \times 8 \times 5 = 160$ lessons.
- In the Foundation Phase about 3 lessons every week should be focused on Numbers, operations and relationships. The remaining 2 lessons can be used to focus on other content areas. Shape and space and Measurement will need more time than Data handling and Number patterns.

Resources in the classroom

Besides the resources listed for each unit, you will need to have these items in your classroom at all times:

- number charts from 1–100 and 101–200
- vertical and horizontal number lines
- a counting frame
- counters of the same colour and kind
- counters of different colours
- counting objects such as stones, blocks, beads, buttons, bottle tops, pegs and sticks, ice-cream sticks, shells
- number symbol cards (1, 2, 3, and so on)
- number name cards (one, two, three, and so on)
- ordinal number cards (first, second, third, and so on)
- value cards
- a set of Flard cards (expanding cards)
- building blocks
- modelling clay
- chalk
- crayons
- koki pens
- pencils
- paper
- newspapers
- magazines
- scissors
- glue
- Prestik
- sticky tape
- drawing pins
- rulers
- tape measures
- a balance scale
- thermometers
- analogue clocks
- old and new calendars
- measuring jugs
- height charts
- boxes and containers of different shapes and sizes
- spheres, balls, cones, cylinders and pyramids
- squares, rectangles, circles and different triangles, all of different sizes
- other quadrilaterals, also pentagons and hexagons
- empty containers, including bottles (plastic)
- match boxes
- empty toilet rolls
- egg boxes or trays
- string, wool, rope
- paint
- dice
- playing cards

- mathematical games such as Ludo, dominoes, puzzles, tangrams, snakes and ladders
- climbing and balancing equipment
- play money (notes and coins)
- a play-shop with items that can be bought and sold.

Under the heading **Learning experiences** you will find a stepby-step breakdown suggesting what you should do to teach the concepts relating to each topic. Once the learners have understood the concepts, they can practise and reinforce what they have learnt by doing the activities in their *Learner's Books* and the worksheets in the *Workbooks*.

Organising the daily mathematics period

According to the CAPS, 'all the time allocated to mathematics on a single day should be considered as one period'. The daily mathematics period should include all of the following:

Whole class activity

- Mental mathematics
- Consolidation of concepts
- Classroom management (allocation of independent activities, etc.)

Small group teaching

- Counting
- Concept development (oral and practical activities)
- Problem-solving (oral and practical activities)
- Written recording of mathematical thinking
- Developing calculating strategies (oral and practical activities)

Independent work

• Learners practise and consolidate concepts developed in whole class and small group activities.

More details about these different aspects of daily classroom activity are given in the CAPS under **Documents** in this file.

Counting activities

Learners need to understand mathematics and therefore they need to experience it and make sense of it through their own thinking and doing activity. A learner's understanding of numbers is the basis of his or her understanding of mathematics. Counting should therefore always be the starting point in mathematics, as it forms part of an essential process in the development of an understanding of number. Involve the learners **daily** in counting activities and encourage them to count as far as they can. At the same time, allow the learners to develop at their own pace and at their own level. Learners can do their daily counting activities individually, in pairs, in groups or as a class. Learners need to go through different stages of progression to develop their understanding of number. Guide them to progress from one level of counting to the next. These levels are:

- Counting all numbers: The learners count all the numbers. When they add numbers they will start counting from 1 every time.
- Counting on: The learners count on from a given number. When adding numbers they will start counting from the given number and continue. For example, if the learners add 7 + 3 they will start counting from 7 and then count 8, 9, 10.
- Decomposing numbers: The learners break down numbers and develop their understanding of the value of numbers. They will know the number components (parts) of a number and therefore they will not have to count. For example, 4 and 3 are number components of 7.

In Grade 3 the learners should do counting activities every day. As part of these daily counting activities they should identify the numbers on the number chart or number lines and write the number symbols and the number names. Here are a few suggestions for activities:

Count concrete objects such as stones, blocks, beads, buttons, bottle tops, plastic bottle rings, pegs, sticks, match sticks, books, pencils, crayons, tables, chairs, windows, bricks, eyes, ears, feet, legs, hands, toes and fingers.

- Count counters.
- Count things in pictures, magazines, books and newspapers.
- Count from 0–10.
- Count from 0–15.
- Count from 0–20.
- Count from 0–50.
- Count in ones from 0–80.
- Count in tens from 0–100.
- Count forwards.
- Count backwards.
- Count even numbers.
- Count odd numbers.
- Count from given numbers.
- Count in twos.
- Count in fives.

When doing counting activities make use of the number chart, number lines or a counting frame. Counting is not about memorising or chanting numbers, but about understanding numbers. The learners need to touch or move concrete objects when counting, or point to the numbers on the number chart or number lines.

Mental mathematics

The CAPS states that mental mathematics plays a very important role in the mathematics curriculum. Learners must know and be able to recall number bonds and multiplication table facts, as listed in the CAPS content area and topic tables for each grade at the back of this *Teacher's Guide*. They must also use this skill in a range of skip counting and 'chain' calculation activities. Mental mathematics is an important part of the Counting and number concept sections relating to Number and patterns, and is also sometimes used in Measurement and Data handling activities.

When doing mental mathematics, it is important never to force the learners to do mental calculations that they cannot manage. They should have writing materials and/or counters available to help them with the calculations, if they can't do them entirely by mental methods.

A teaching strategy that builds conceptual and social skills

The learning experiences in this course are designed for group work, pair work, individual work and for the whole class to do together. This cultivates an ethos of cooperation and working together. Letting learners work together is a very useful and successful teaching strategy. It helps the learners develop social skills such as cooperating in teams, taking turns, showing respect and responsibility, as well as listening and communicating effectively through interactive learning.

Helping learners overcome barriers to learning mathematics

Learners who experience barriers to learning mathematics should be given many opportunities for activity-based learning, to help them overcome their barriers at the pace that works for them. They should be given more time to do practical examples, using concrete objects and practical experiences, than other learners. Moving too soon to abstract work may make these learners feel frustrated, and lead to them losing any mathematical understanding and skills they have developed.

When organising daily classroom activities, allow more time for these learners to complete tasks, use their own strategies to develop their thinking skills, and do assessment activities. You may also need to reduce the number of activities you give to these learners, without leaving out any of the concepts and skills that need to be introduced and consolidated.

Suggested structure for a mathematics period

The flow diagram on the next page presents a possible structure for a mathematics period. As suggested earlier, do counting activities with the learners daily. Learners can do these activities individually, in pairs, in groups or as a class. After the counting activities, do mat work to teach concepts (knowledge) and skills. You can do mat work with groups of four, six or eight learners, and the groups can be mixed groups or ability groups. The concepts taught in these learning experiences will cover topics in Content areas 1 to 5.

Keep in mind that you do not necessarily have to cover a whole topic on any single day. It might take your learners much longer to grasp a concept in that topic, and you can spread the learning experiences for the topic over a few days.



Assessment

The purpose of assessment is to inform you, the learners and their parents or guardians about their performance. Assessment also serves as a tool for you to reflect on and analyse your own teaching practice, as this impacts on the learners' performance. You can use your assessment to see whether you need to provide more opportunities for some or all of the learners to develop a particular skill or master a concept in a given topic.

You should develop a well planned process to identify, record and interpret the performance of your learners throughout the year, using both informal and formal assessment methods. Keep a record of the learners' performance on assessment sheets, and summarise this information on a report form or card to give the learners and their parents or guardians at certain times of the year. You may photocopy the various assessment sheets provided in this *Teacher's Guide* to use in your classroom.

Assessment methods

You can use various methods to assess the learners' progress during the year. Any assessment method involves four steps:

- generate and collect evidence of learners' achievement;
- evaluate this evidence;
- record your findings;
- use this information to understand learners' development and help them improve the process of learning, and also to improve your teaching.

Before you undertake any assessment of learners' work, decide on a set of criteria or standards for what they should be able to understand and do, and base your assessment on these criteria. It is important that you give the learners clear instructions on what you expect of them, so that they can complete the assessment tasks correctly and honestly. Once an assessment task has been completed, discuss your assessment with the learners and give them feedback to help them increase their ability to do the task successfully.

In the Foundation Phase assessment is a continuous process. In the course of the year, your continuous assessment plan should include informal and formal assessment. These are some of the methods you can use:

• Observation is your main assessment method for informal and formal assessment. Try to observe a few learners at a time. Select an observation sheet from the photocopiable assessment sheets in this *Teacher's Guide* and record your observations for these learners. For informal assessment purposes you should also keep an observation book in which you record notes on each learner's achievement in daily activities. For formal assessment, you will use checklists and rubrics to write down your observations while learners are performing set tasks.

- **Performance-based assessment** consists of tasks in which learners must create, produce or demonstrate something. You need to assess both the process learners use to complete the task, and the end product they produce.
- Written work to be assessed can include worksheets and tests. A test is a written task completed individually by learners within a set time span. Tests should consist of questions and tasks similar to those that learners have already done in class, with the support of the teacher and other learners. A test should not include new types of questions or tasks that learners have not encountered before.
 - Standardisation exercises provided to schools should not be used as tests in Grades 1 and 2, as they are not intended to assess individual learners; rather, their purpose is to help teachers reflect on their own teaching practice.
 - Written assessments on their own don't provide the teacher with enough information to understand why learners are making errors. These tests should therefore always be used together with observation and other informal assessment methods (such as interviews with learners) to find out what learners are thinking when they do a mathematics activity.

You should practise continuous assessment by monitoring **all** the written work done by learners. All written work should be kept as evidence of learners' progress, and to identify their needs.

Further details are given below about informal and formal assessment methods specified in the CAPS.

Informal assessment

Informal assessment is done on a daily basis, as learners work on their learning activities. It should not be seen as a separate activity from learning and teaching.

Due to the fact that learners assimilate content at a varied pace makes it important that the educator continuously record informal assessments as learners interact with the content.

You can do this assessment by observing the learners as they work, by asking them to demonstrate a particular skill, or by talking to a learner about his or her thinking during an activity. Learners can also assess each other's skills and understanding as they do a shared activity. This encourages them to reflect on their own performance and recognise where they need help.

The information you gather in this informal assessment need not be recorded, unless you find this useful. The results of this assessment are not counted for promotion purposes.

Formal assessment

Formal assessment consists of the tasks that you mark and formally record during the year for progression and certification purposes. These tasks are subject to moderation, to ensure that they maintain the appropriate quality and standards. Formal assessment provides you with a systematic way to evaluate how well the learners are progressing.

There are no examinations in the Foundation Phase. All formal assessment tasks are conducted using continuous assessment methods.

Examples of formal assessment tasks are: tests, practical tasks, projects, oral presentations, demonstrations, etc. At regular intervals the educator should conduct a formal assessment from extracts of the content that has been taught to and practiced by the learners.

Assessing learners who experience barriers to learning

Learners who experience barriers to learning should be given opportunities to demonstrate their competence in ways that suit their needs. You may have to consider using some or all of the following methods when assessing these learners:

- Allow these learners to use concrete apparatus for a longer time than other learners in the class.
- Break up assessment tasks (especially written tasks) into smaller sections for learners who have difficulty concentrating for long periods, or give them short breaks during the task.
- Learners who are easily distracted may need to do their assessment tasks in a separate venue.
- Use a variety of assessment methods, as some learners may not be able to demonstrate what they can do using certain types of assessment. For example, a learner may be able to explain a concept orally but have difficulty writing it down.
- In the Foundation Phase the inability to read should not prevent learners from demonstrating their mathematical competence.

Reporting learners' performance

Reporting is the process of communicating learners' performance to the learners themselves, and to parents and guardians, schools and other stakeholders. You can use report cards, parent meetings, school visitation days, parent-teacher conferences, phone calls, letters and other appropriate methods to make your reports.

Records of learner performance should provide evidence of the learner's conceptual progression within a grade and her/his readiness to progress to the next grade.

Formal assessment is reported in all grades using percentages.

The table below sets out the national codes and descriptors to be used for recording and reporting levels of competence in the Foundation Phase. You should also use comments to describe learners' performance, as appropriate.

Achievement level	Achievement description	Marks (%)
7	Outstanding achievement	80–100
6	Meritorious achievement	70–79
5	Substantial achievement	60–69
4	Adequate achievement	50–59
3	Moderate achievement	40–49
2	Elementary achievement	30–39
1	Not achieved	0–29

Table 5: Codes and descriptors for recording and reporting in Grades R–3

Pre-tests and post-tests

It is important to do a pre-test before you teach a new concept. The pre-test is a short, quick and informal test to determine the learner's knowledge and skill levels. It gives you a clear idea not only of what they know and can do but also what they don't know and can't do. It also gives you a picture of the level of the class as a whole and an idea of how to group learners for group work. It serves as a good baseline exercise and is therefore an invaluable tool in teaching.

The idea is to do a pre-test before teaching a new concept. You then teach the concept, the learners get to practise the skills for a period of time, after which they do a post-test to measure the impact and understanding of the teaching and learning. This is a tool for both the teacher and the learner.

Remember, after you have taught the concept you give the learners the same test, but this time you use it as a post-test. This will show you and the learners how much they have progressed or where they still need help. It also serves to motivate learners because it gives them the opportunity to improve in specific areas.

Here are a few examples of how to use pre-tests and post-tests.

Counting

Counting exercises should be done practically in the class with each individual learner. Before you start teaching, do a counting pre-test to see if the learners can count – who can and who can't, how they do it, do they understand the concepts or are they just guessing or repeating what they've heard.

- Have a group of 8 to 10 learners on the mat.
- Give each learner a small mat/tray to work in their own

space and 10 counters/concrete objects.

- Ask the learner to count to 4.
- Ask the learner to count to 6.
- Ask the learner to count to 10.
- Each time, ask them to identify the number on the number chart.
- Ask them to draw the number.
- Ask them to write the number.

Counting at this level should be done by way of one-to-one correspondence. This means that the learner should touch and move each counter or object as they say the number out loud and as they move along counting all the objects to the end.

The same applies to doing skip counting and counting in groups or multiples in the specific grades.

You will be able to see who skips, who repeats, who does it from memory, who can and who can't, who says the incorrect number for the quantity, and who cannot count using oneto-one correspondence. You will also be able to see who can identify the numbers, who can draw the numbers, and who can write the numbers. It will clearly show you who can't and who writes numbers backwards. This serves as an important tool for the teacher.

This should be a practical as well as a written exercise. Therefore, learners should be able to do written exercises and written pre-tests and post-tests.

Remember, the pre-test and post-test must be the same test. The learners who struggle should do the post-test more than once after interventions to see how they progress and where they still need support.

Pre-test / Post-test				
Date:		Name:		
Topic: Counting Total: 6 2				
The learner is able to:		(Areas for development – this is for your information)		
Count to 4	X	Skips number		
Count to 6	X	Skips and repeats numbers		
Count to 10	X	Skips and repeats numbers		
Identify the number on a chart	~			
Draw the number of objects	X	Unable to draw the number of objects		
Write the number symbol	1			
Total: 6	2			

Example:

After teaching this concept/skill and giving the learners enough opportunities to practise counting, give them the same test as a post-test. This should show their progress and where more help is required.

- Afterwards, you would want them to count objects to 20 and beyond consecutively.
- Number ranges change from grade to grade and should be implemented in a grade-specific manner.

Comparing numbers

In this section the learner is expected to understand the concepts more than, less than, highest, lowest, biggest, smallest, largest, greater than, before, after and between. In Grade 1 they should understand the concepts one and many, more and less and one more and one less. In Grade 2 and 3 they also need to understand the symbols > and <.

You could use one of the exercises in the Learner's Book or the Workbook as a pre-test or you could create a new test.

Remember, the pre-test and post-test must be the same test. The learners who struggle should do the post-test more than once after interventions to see how they progress and where they still need support.

Pre-test / Post-test					
Date:	Name:				
Topic: Comparing numbers	Total:				
The learner is able to:	(Areas for development – this is for your information)				
Show understanding of more than					
Show understanding of less than					
Show understanding of biggest, smallest					
Show understanding of greater than, largest					
Show understanding of before and after					
Show understanding of between					
Total:					

Example:

Ordering numbers

It is important for the learners to understand the concepts before, after, between, forward, backward, smaller, larger, largest, smallest, highest, lowest, ascending, descending, bigger, and biggest.

You could use one of the exercises in the Learner's Book or Workbook as a pre-test or you can create your own.

Remember, the pre-test and post-test must be the same test. The learners who struggle should do the post-test more than once after interventions to see how they progress and where they still need support.

Example:

Pre-test / Post-test					
Date:	Name:				
Topic: Ordering numbers	Total:				
The learner is able to:	(Areas for development – this is for your information)				
Show understanding of before, after, between					
Show understanding of forward and backward					
Sequence numbers in ascending order					
Sequence numbers in descending order					
Show understanding of smaller, smallest					
Show understanding of highest, lowest					
Identify sequences to reflect understanding of larger, largest, bigger, biggest					
Total:					

Fractions

This could be a practical exercise or written exercise. Doing fractions in a practical way is very important at this early stage of learning. Be aware of the content in each grade before you create a pre-test. Learners will also do written exercises as well as written pre-tests and post-tests.

You could use one of the exercises in the Learner's Book or Workbook as a pre-test or you can create your own.

Remember, the pre-test and post-test must be the same test. The learners who struggle should do the post-test more than once after interventions to see how they progress and where they still need support.

Example:

Pre-test / Post-test	
Date:	Name:
Topic: Fractions	Total:
The learner is able to:	(Areas for development – this is for your information)
Identify a fraction – half	
Identify a quarter	
Identify a third	
Identify a whole	
Compare fractions according to size ½, ¼, ⅓	
Solve a problem	
Total:	

Place value

Use the grade-specific number ranges and content to create a pre-test. You could use an exercise from the Learner's Book or the Workbook as a pre-test or you could create one.

The learner is expected to understand the concepts 10, 100 and 1 000, which are grade specific.

They must know how to break up numbers into tens, units and hundreds and how to build up numbers using tens and units. They should be able to make a new number using hundreds, tens and units. It is important for learners to grasp the concepts of decomposing numbers and adding numbers using hundreds, tens and units. They need to practise a lot of this before doing the post-test.

Example:

Pre-test / Post-test		
Date:	Name:	
Topic: Place value	Total:	
The learner is able to:	(Areas for development – this is for your information)	
Identify tens and units		
Identify hundreds		
Decompose numbers into hundreds, tens, units		
Build new numbers using hundreds, tens, units		
Identify the value of each digit in a number		
Solve a problem: add hundreds, tens, units		
Solve a problem: subtract hundreds, tens, units		
Total:		

You could do an additional pre-test just on the following:

- Solving a problem: adding tens; adding units; adding hundreds
- Solving a problem: subtracting tens; subtracting units; subtracting units.

The learners will need a lot of opportunities to practise these skills before they do a post-test.

Remember, the pre-test and post-test must be the same test. The learners who struggle should do the post-test more than once after interventions to see how they progress and where they still need support.

Addition and subtraction

Addition and subtraction are basic but very important skills for every learner to master. Learners need to understand that we can add numbers together and the symbol used is the plus
- Pack it out.
- Draw the
- picture.
- Write the sum.

sign (+). We can subtract numbers one from the other and the symbol used is the subtraction sign minus (–). They should use concrete objects to help them to add and subtract. They need to draw a picture to show their addition or subtraction sum before they write out their sum. These three steps help the learner to internalise their learning. The more opportunities they get to do this the sooner they will master their addition and subtraction skills.

The different phases or levels of addition and subtraction are grade specific, so bear in mind the number ranges as well as the content regarding addition and subtraction for the specific grade that you teach.

You should have a pre-test for every phase of addition and subtraction that you teach. You want to know that the learner understands the concept and is able to add in that phase before moving on to the next phase, for example, before moving on to adding three digits, the learner must be able to add two digits. You can do pre-tests and post-tests to determine this.

The pre-tests should be done separately for each aspect of addition and subtraction; this will give you a clear idea of what the learner can and can't do. You could use one of the exercises in the Learner's Book or Workbook as a pre-test or you can create a new one.

Remember, the pre-test and post-test must be the same test. The learners who struggle should do the post-test more than once after interventions to see how they progress and where they still need support.

Pre-test / Post-test	
Date:	Name:
Topic: Addition	Total:
The learner is able to:	(Areas for development – this is for your information)
Add units	
Add two digits	
Add three digits	
Pack out the sum with concrete objects	
Draw a picture of the addition sum	
Write the addition sum/the number sentence	
Add tens and units	
Decompose/regroup numbers	
Solve addition problems	
Total:	

Example:

Pre-test / Post-test	
Date:	Name:
Topic: Subtraction	Total:
The learner is able to:	(Areas for development – this is for your information)
Subtract units	
Subtract two digits	
Subtract three digits	
Pack out the sum with concrete objects	
Draw a picture of the subtraction sum	
Write the subtraction sum/ the number sentence	
Subtract tens	
Solve subtraction problems	
Total:	

Grouping and repeated addition

It is important for the learners to understand grouping as it is the introduction to multiplication. They need to understand that grouping the same number means that we can add the same number over and over. For example, 3 + 3 + 3 + 3 + 3 =15 (repeated addition) is the same as $3 \times 5 = 15$ and $5 \times 3 =$ 15 (multiplication). They should understand the vocabulary: grouping; same as; equal; multiply/multiplication/times.

They should use concrete objects. Give them lots of opportunities to practise these skills before doing the post-test. This will help them to see their progress or where they need more help. It will motivate them to improve. You could use one of the exercises in the Learner's Book or Workbook as a pre-test or you can create your own.

The pre-test and post-test must be the same test. The learners who struggle should do the post-test more than once after interventions to see how they progress and where they still need support.

Pre-test / Post-test	
Date:	Name:
Topic: Grouping	Total:
The learner is able to:	(Areas for development – this is for your information)
Make groups of the same/ equal number using concrete objects	
Draw their groups, including the answer	
Write their repeated addition sum, including the answer	
Solve problems	
Total:	

Multiplication

Multiplication is repeated addition. The learners must understand grouping first, which leads to understanding repeated addition and this then leads to multiplication. Learners need to understand that when we multiply we add the same number over and over. They need to understand that we use the multiplication sign (×) to multiply. They should also understand the words equal/same as and times/multiply. Let them use concrete objects to help them. They should pack out the sums, draw the picture of the sums and then write the sums. These steps are important because they help learners to internalise their learning. The sooner the learners master this the sooner they will master their multiplication skills.

Remember, the pre-test and post-test must be the same test. The learners who struggle should do the post-test more than once after interventions to see how they progress and where they still need support.

Pre-test / Post-test	
Date:	Name:
Topic: Multiplication	Total:
The learner is able to:	(Areas for development – this is for your information)
Identify groups	
Make equal groups of the same number	
Pack out the sum	
Draw the sum	
Write the sum	
Add the same number and provide the answer	
Multiply and provide the answer	
Solve multiplication problems	
Total:	

Sharing

It is important for learners to understand the concept of sharing, as this will help them understand the concept of division: sharing is division. Like all other new concepts, it must be taught in a concrete way to facilitate understanding. Learners must grasp that when we do sharing, we are actually subtracting the same amount over and over. For example:

$6 \div 2 = _ 6 - 2 - 2 - 2 = 0$ $6 \div 2 = 3$

Learners should start with a practical exercise, i.e. they must pack out concrete objects. Next, they must draw the picture to show that they understand, and then they must write the sum.

Use one of the exercises from the Learner's Book or the Workbook as a pre-test and post-test.

The pre-test and post-test must be the same test. The learners who struggle should do the post-test more than once after interventions to see how they progress and where they still need support.

- Pack it out. Draw the
- picture.
- Write the sum.

Pre-test / Post-test	
Date:	Name:
Topic: Sharing	Total:
The learner is able to:	(Areas for development – this is for your information)
Make groups of the same/ equal number using concrete objects	
Share the concrete objects into equal groups	
Draw their shared groups, including the answer	
Write their repeated sharing/subtraction sum, including the answer	
Write the division sum, including the answer	
Solve problems	
Total:	

Division

Division is an important skill to learn. The learning has to be internalised for learners to successfully understand and master the skill. This must be done practically first, using concrete objects, then by drawing the sum and by writing the sum.

- Draw the picture.
- picture.

• Pack it out.

• Write the sum.

The pre-test and post-test must be the same test. The learners who struggle should do the post-test more than once after interventions to see how they progress and where they still need support.

Example:

Pre-test / Post-test	
Date:	Name:
Topic: Sharing	Total:
The learner is able to:	(Areas for development – this is for your information)
Recognise division as repeated subtraction	
Divide the concrete objects into equal groups	
Draw their shared groups, including the answer	
Write their repeated sharing/subtraction/ division sum, including the answer	
Write the division sum, including the answer	
Solve problems	
Total:	

Doubling and halving

Doubling and halving are techniques to help learners do calculations. They need to understand the concepts well to use them as techniques.

Doubling means two of the same number, for example 20 and 20 is 40; 4 and 4 is 8. Doubling means to make more; to add the same amount again.

Halving means to take away half. For example, if you halve 6 between two children, each one should have the same amount, which is 3. The learners must use one-to-one correspondence to facilitate their understanding of the concept.

The learners must do the practical activity first, using concrete objects, then draw the sum and then write the sum.

You could use one of the exercises in the Learner's Book or Workbook as a pre-test or you can create a new one. Remember, the pre-test and post-test must be the same test. The learners who struggle should do the post-test more than once after interventions to see how they progress and where they still need support.

Pre-test / Post-test	
Date:	Name:
Topic: Sharing	Total:
The learner is able to:	(Areas for development – this is for your information)
Recognise division as repeated subtraction	
Recognise halving as division	
Divide the concrete objects into equal groups	
Draw their shared groups, including the answer	
Write their repeated sharing/subtraction/halving division sum, including the answer	
Write the division sum, including the answer	
Solve problems	
Total:	

Example:

Mental calculations

Mental maths is an important skill that must be learnt in a practical way. Learners' skills could be sharpened by playing games, especially card games and board games, working in pairs and in small groups, doing short exercises and repeatedly doing revision. Whichever way you do this, the learner has to try to think quicker and get to the answers faster. They need to get plenty of opportunities to practise these concepts in order to successfully master the skills. You could use one of the exercises in the Learner's Book or Workbook as a pre-test or you can create your own. Remember, the pre-test and post-test must be the same test. The learners who struggle should do the post-test more than once after interventions to see how they progress and where they still need support.

Example:

Pre-test / Post-test	
Date:	Name:
Topic: Sharing	Total:
The learner is able to:	(Areas for development – this is for your information)
Identify the operation that is needed to calculate	
Show understanding of how to do the operation	
Show understanding of how to get the answer	
Use appropriate methods to calculate	
Provide correct solutions	
Solve problems	
Total:	

Problem solving

Problem solving is a process skill. Learners need to be able to read, interpret and understand the word problem in order to solve it. They need to pack it out, draw it and write the sum.

You could use one of the exercises in the Learner's Book or Workbook as a pre-test or you can create a new one.

Remember, the pre-test and post-test must be the same test. The learners who struggle should do the post-test more than once after interventions to see how they progress and where they still need support.

Example:

Pre-test / Post-test	
Date:	Name:
Topic: Sharing	Total:
The learner is able to:	(Areas for development – this is for your information)
Identify the operation that is needed to calculate	
Show understanding of how to do the operation	
Show understanding of how to get the answer	
Use appropriate methods to solve it	
Provide correct solutions	
Solve problems	
Total:	

Rounding off

Rounding off is another technique learners can use to help them find solutions to sums. They must be able to estimate and understand how to round off numbers to the nearest ten. They also need to know how to round off using a number line.

You could use one of the exercises in the Learner's Book or Workbook as a pre-test or you can create a new one.

Remember, the pre-test and post-test must be the same test. The learners who struggle should do the post-test more than once after interventions to see how they progress and where they still need support.

Example:

Pre-test / Post-test	
Date:	Name:
Topic: Sharing	Total:
The learner is able to:	(Areas for development – this is for your information)
Estimate	
Round off to the nearest ten – up	
Round off to the nearest ten – down	
Use a number line to round off numbers	
Provide correct solutions	
Solve problems	
Total:	

Samples of pre-test and	l post-test
-------------------------	-------------

Addition	Addition
4 + 2 =	3 + 1 + 4 =
2 + 3 = 10	2 + 5 + 3 = 10
3 + 6 =	4 + 4 + 1 =
4 + 5 =	5 + 1 + 2 =
9 + 1 =	8 + 1 + 1 =
6 + 4 =	6 + 2 + 3 +
2 + 8 =	5 + 1 + 4 =
5 + 3 =	2 + 3 + 2 =
2 + 5 =	6 + 1 + 1 =
7 + 2 =	4 + 5 + 0 =



Grouping and sharing

- 1. There are 5 dogs. How many eyes?
- 2. There are 6 baskets with 4 apples in each. How many apples?
- 3. There are 2 boxes. How many plants are there if there are 9 plants in each box?
- 4. You have 8 shoes. How my laces?
- 5. There are 3 cows. How many legs?
- 6. Share 9 bananas among 3 monkeys.
- 7. Share 10 pencils between 2 boys.
- 8. Share 20 plums among 4 children.
- 9. Share 12 sweets between 2 children.

10. Share 6 coins between 2 girls.

Problem solving

- 1. There are 6 pears and 10 apples. How many pears and apples are there altogether?
- 2. You have 10 red pencils and 3 green pencils. How many coloured pencils are there?
- 3. 18 bread rolls are shared among 9 children. How many bread rolls does each child get?
- 4. There are 5 boxes with 4 pies in each box. How many pies altogether?
- 5. 24 cup cakes are shared between 2 cafés. How many cakes does each café get?

Programme of Assessment

Bear in mind that formal assessments must be planned ahead of time. The grade teams should sit together to plan a Programme of Assessment for the year as required by the Department of Education.

The Programme of Assessment must include the date, time and the specific activity to be assessed. This should form part of the planning and preparation of the school plan and work for each term. It should be regarded as continuous assessment.

All the learner codes, ratings and scores should be recorded to keep track of learners' progress.

Photocopiable sheets

Teacher assessment

Task		
D (Ŧ	
Date	Learners	Observations

Teacher assessment

Learner:		
Date	Observations and comments	

Teacher assessment

Task:

Learners	exceptional competence	progress is fast	progress is consistent	progress is slow	unable to do task

Parent/guardian assessment

Date:		
I am assessing the work of:		
Please tick (✔)	yes	no
He/she struggled.		
He/she understood what to do.		
He/she could work on his/her own.		
He/she needed my help.		
He/she completed the task.		
Any other comments:		
Signature:		

Parent/guardian assessment

Date:
I am assessing the work of:
Comments:
Signature:

Part 3 Lesson-by-lesson

Content area/Module I Numbers, operations and relationships

The following units give you step-by-step guidelines on how to teach the concepts covered in this content area.

I Counting

Learning experiences

Lesson focus

- The learners work in groups on the mat. Do a few counting activities using a variety of objects and counters, as well as a number chart and number line.
- Let the learners use number or counting charts for counting. Make sure they are counting correctly. The learners should do a series of counting activities daily.
- Explain to the learners that **estimating** means guessing (judging) the closest, accurate number without counting. Tell them that the **actual number** is the number that was counted. Explain that **calculate the difference** means they must subtract (minus) one number from the other.
- Let the learners do the activities over a few lessons. Give them some of the tasks to do as homework or during group work in the next lesson.

Give the learners practice in **counting** by doing: *Learner's Book*: Module 1, Activities 1–12 *Workbook*: Worksheets 1–9

counting, identifying, recognising, estimating, recording, reading

Resources

number charts; pencils; crayons

Concepts

counting

Vocabulary

estimate, actual, difference, calculate

Skills

2 Symbols and number names

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

counting, identifying, reading, writing, ordering, matching

Resources

flashcards; number symbol cards (page 136); number name cards (pages 137– 139) and number charts (page 133); counters; books; paper; pencils

Concepts

numbers

Vocabulary

number names to 1 000

Learning experiences

Lesson focus

- Give each group a pack of number cards and a pack of number name cards. Ask the learners to place each pack of cards face down in the middle of the group.
- All learners have a turn to pick up a number card, read the number aloud and place the card face up in front of themselves.
- Then all learners pick up a number name card, read the number name aloud and place the card face up in front of themselves. If one learner has the number card that matches the number name card that another learner has picked up, they say 'pass it on' to the learner who has the matching number name card. That player passes the name card to the learner who needs it. The learner who has matching number and number name cards makes up a set and puts the set on one side. Learners may only pass on the number name cards.
- The learners continue playing until all the cards have been made into sets.

Give the learners practice in using **number symbols** and **number names** by doing:

Learner's Book: Module 1, Activities 13-14

3 Another language

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

counting, identifying, reading, writing, naming, matching

Resources

flashcards with number names up to 10 in two languages other than the home language; number cards; number name cards, number charts; value cards; counters; concrete objects; books; paper; pencils

Concepts

number concept, number names, number symbols

Vocabulary

number names in two additional languages

Learning experiences

Lesson focus

- Ask the learners to count up to 10 in an additional language that is spoken in your area. Lead the counting if the language is not their home language.
- First use counters and then the number chart for counting. Point to each number as you say its name. Ask the learners to repeat the number names after you.
- Then show learners a value card. Ask the learners to choose the card with the correct number name to match the value card, and to place the two cards next to each other. Keep the numbers in order, and repeat the activity with numbers up to 10. Let the learners read all the number names.
- Then mix up the numbers and ask the learners to say the numbers in their home language, and then in an additional language. Ask them to draw the number values and to write the numbers and number names.
- Once the learners are confident with counting in another language, follow the same procedure to introduce counting in a second additional language that is spoken in the area.
- Give the learners lots of practice in matching the two different language number names with English number names.
- Display a poster in the classroom with number symbols and number names in various languages. Encourage the learners to refer to the poster and to read the numbers and number names.

Give the learners practice in using **numbers names in** additional languages by doing: *Workbook*: Worksheets 10–11

4 Describe, compare and order numbers

Starting off

Do a variety of counting activities with the class.

Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

counting, recognising, ordering, comparing, matching

Resources

number charts; number cards; number name cards; counters; books; paper; pencils; prepared sheets; flashcards with before, after, between, smallest, biggest, lowest and highest written on them

Concepts

greater than, less than, before, after, between, smallest, biggest, highest

Vocabulary

greater than, less than, before, after, between, smallest, biggest, lowest, highest, smaller to bigger, bigger to smaller, smaller than, more than, equal to

Learning experiences

- Set up four working areas before the lesson. You could use four tables or four small mats, depending on your classroom. Choose sixteen learners and divide them into groups of four. 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 four tables.
- Facilitate the groups while they are busy at the work areas.
- Tell the learners 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 worksheets.

Worktable 1

Lesson focus

- Prepare a set of **greater than** and **less than** symbol cards, a set of number symbol cards and a set of number name cards (see the photocopiable sheets on pages 135–139).
- Place all the cards face down on the table. Learners take turns to pick up a number symbol card, a greater than or less than card and a number name card. They place the cards face up in the order they picked them up (i.e. number symbol, < or > and number name), read them aloud and say whether the statement is *true* or *false*. For example: 145 < eighty = false.

Worktable 2

Lesson focus

- Prepare a set of **before** and **after** cards, a set of number cards from an ordered range (for example, from 320 to 340), a set of name cards, and **before** and **after** sheets.
- Place all the cards face down on the table. Learners 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 learners are allowed to move cards around their sheets until they have the correct answers.

Worktable 3

Lesson focus

- Prepare a 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 number cards from the smallest to the biggest.
 - Arrange 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 4

Lesson focus

- Prepare a set of **more** or **less** cards (for example, 10 more; 20 more; 50 more; 100 less; 20 less; 50 less), a set of number symbol cards and prepared sheets to write on.
- Learners take turns to choose one card from each pile. They write down the number from the number symbol card first, and then **more** or **less**, depending on which card they pick up. They fill in the correct answer on the sheet and pass it on to the next learner. The group continues until their time at the work area is over.

Give the learners practice with **comparing and ordering numbers** by doing: *Learner's Book*: Module 1, Activities 15–25 *Workbook*: Worksheet 12

5 Fractions

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the

learners to do.

Skills

counting, recognising, problem-solving, explaining, communicating, labelling

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

Concepts

halves, quarters, thirds

Vocabulary

half, quarter, third, equal parts

Learning experiences

Lesson focus

- Give each learner two sheets of paper. Ask them to fold one sheet of paper in half so they have two equal parts, and then to tear or cut the paper on the fold. Ask the learners how many equal parts they have and what each part is called. They then write the fraction on each equal part.
- Repeat the activity with the other piece of paper, but this time ask the learners 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. They then write the fraction on each equal part.
- Give each learner a strip of paper. Ask them to fold it into three equal parts, and then to tear or cut the paper along the folds. Explain that each part is called a third. Show flashcards of the number symbol 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 learners to write $\frac{1}{3}$ on each equal part.
- Get the learners to compare the fractions ¹/₂, ¹/₄ and ¹/₃. Ask them which is bigger and which is smaller. Ask them to put their parts together again to make whole numbers.
- Give the learners 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 learners 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 a $\frac{1}{3}$ of a number, they should share into three or divide by three because there are three equal parts in the whole.
- Divide the learners 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. Learners take turns to divide the counters and answer the question.

Give the learners practice with **fractions** by doing: *Learner's Book*: Module 1, Activities 26–35 *Workbook*: Worksheets 13–19

6 Place value

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

counting, recognising, explaining

Resources

number cards; counting chart; counters; hundred squares; ten bars; 100 single squares and a thousand square (see the photocopiable templates on page 145). Paste these onto card so they are firmer for longer use.

Concepts

place value

Vocabulary hundreds, tens, ones

Learning experiences

Lesson focus

- Divide the learners into groups. Give each group 10 hundred squares, 10 ten bars and 10 single squares.
- Ask the learners to count the single squares and to say how many they have (they should say 10). Explain that they have 10 ones. Tell them to exchange the ones for 1 ten (they should replace the 10 ones with 1 ten bar). Explain that **10 ones equals one 10**. Tell them to place the number card next to the symbol 10.
- Now ask the learners 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 equals 100**. Let them count the tens in 10s, and then exchange the 10 tens for a hundred square.
- Ask the learners 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 learners have put out 10 hundred squares and the number card 1 000. Explain that **10 hundreds equals 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 learners 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 learners into pairs. One learner uses number symbol cards to make a number by placing the cards over each other. The same learner then asks their partner to lay out the numbers using the squares (for example, the learner will put out 4 hundred squares, 5 ten bars and 6 ones). The learners swap roles so each learner 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. Learners can find a way that works best for them.

Give the learners practice with **place value** by doing: *Learner's Book*: Module 1, Activities 36–48 *Workbook*: Worksheets 20–25

7 Money

Starting off

Do a variety of counting activities with the class.

Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

counting, reading, communicating, problem-solving, calculating

Resources

coins and notes (real or see photocopiable templates on page 148); number charts; pencils; paper; books

Concepts

money, totals, change, converting

Vocabulary

rands, cents, change, cheque, currency

Learning experiences

Lesson focus

- Let the learners work in pairs at their desks to discuss and complete Activity 49 of the *Learner's Book*.
- Guide and help the learners as necessary. For example, you may need to explain aspects of currency, the pictures on the notes and the watermark.
- Once the learners have completed the activity, ask them to give feedback to the whole class so everyone can hear their views. Encourage class discussion.
- Then explain the process of converting between rands and cents. Write 150c on the board. Ask the learners how many rands there are in 150c. Explain that we can write this as R1,50. Do a few more examples with the class.
- Give the learners a problem to solve. For example: You have 1 000c. How many rands and cents do you have? If you spend R3,00 of your money on ice cream, how much change will you get? Allow the learners to solve these problems in pairs and to give feedback to the class.

Give the learners practice with **money** by doing: *Learner's Book*: Module 1, Activities 49–56, 59 *Workbook*: Worksheet 26

8 Problem-solving

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

counting, reading, interpreting, problem-solving, estimating, calculating, explaining, communicating, reasoning, logical thinking, checking, cooperating in a group, taking turns

Resources

counters; objects; number charts; calculators; paper; books; pencils; crayons; word problem cards; large sheets of paper such as newsprint

Concepts

addition, subtraction, equal sharing, grouping, multiplication

Vocabulary

total cost, change, calculate, check, solve, solution

Learning experiences

Lesson focus

• Divide the learners into groups of four. Give each group a problem written on a card or a large sheet of paper, or write a problem on the board.

For example: Carol and Sifiso share 48 sweets equally between them. How many sweets do they each get? Or Tutu has a piece of string which is 73 cm long. She cuts another piece of string which is 28 cm longer. What is the length of the longest piece of string?

- Ask the learners to read the problem first and then discuss it in their groups. They do not work out the answer at this stage.
- If they need to, let the learners draw pictures to help them illustrate, interpret and understand the problem.
- The learners then discuss and share their ideas about how they think they could solve the problem. Ask them to estimate the answer first and to write down their estimate.
- The learners work out the answer to the problem using their methods. They should write down the sum, compare the answer to the estimated answer, and then check their answers.
- Learners take turns to describe to their group how they solved the problem. Let them compare their methods so they can see how the others solved the problem.

Note: Problem-solving is a process skill. Always give the learners sufficient time to solve problems. They may need help with reading, understanding and interpreting word problems (story sums). You can do this to help them:

- Write out the word problem on a sheet of paper and display it in the classroom.
- Choose specific vocabulary, for example altogether, each, same, share, sweets, marbles, bananas, total cost, change, learner's names. Make flashcards of these words. Display the flashcards so the learners can read them. Add new words as necessary.
- Use your list of words to make up more word problems.
- Encourage the learners to write their own word problems using the vocabulary on the flashcards to help them.
- Tell the learners to look at pictures for ideas to make up their own word problems. (The learners could use pictures from the *Learner's Book* or elsewhere as a context from which to work.)
- Let the learners read each other's word problems.
- Encourage learners to follow these steps when solving word problems:
 - Read the sum carefully and discuss it with the group, class or partner. (The learners do not have to solve the problem yet, but need to decide what is required.)

- The learners can now use concrete objects to try to solve the problem.
- Tell the learners to draw a picture to illustrate their interpretation and understanding of the problem.
- Let the learners discuss their illustrations and share ideas on how they think they can solve the problem.
- The learners should then write out the number sentence with the answer.

Give the learners practice with **problem-solving** by doing: *Learner's Book*: Module 1, Activities 57–58, 60–61

9 Calculations

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

counting, recognising, calculating, problem-solving, estimating, communicating, explaining, reading, reasoning, logical thinking, critical thinking

Resources

number charts; counters; number lines; paper; books; pencils, calculators

Concepts

addition, subtraction, multiplication, division

Vocabulary

calculate

Learning experiences

Lesson focus

- Divide the learners into groups of four. Give each group a few problems written on a card or a large sheet of paper.
- Remind the learners to read each problem carefully, to discuss it in their groups, and then to plan how to find the solution. They must estimate the answer and record the estimate before they do the calculation. Remind them to compare the actual answer to the estimated answer, to explain to each other how they worked it out, and to check each other's solutions.
- Let the learners use a calculator to check their accuracy.

IO Addition

Mental addition

Starting off

Do a variety of counting activities with the class. Choose a pattern

activity from Content area/ Module 2 for the learners to do.

Skills

problem-solving, explaining, calculating, communicating, working with numbers, cooperating in a group, taking turns

Resources

flashcards with addition sums with solutions to at least 20; number chart; number line; counters; crayons; paper and pencils; counters; concrete objects; three dice

Concepts

addition

Vocabulary

mental calculation, add, equals, calculate, check, hundreds, tens, ones

Learning experiences

Lesson focus

• Divide the learners into pairs. Give each pair a set of cards with sums, for example:

300 + 700	1 000
Front	Back

- Ask the learners to shuffle the cards. One learner 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 learner keeps the card.
- Learners take turns to show a card and work out the answer. At the end of the game all learners 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 learners 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 learners to take turns to throw the dice and add the numbers. The learners throwing the dice should work out the answer in their heads. The other three learners check to confirm if the answer is correct. If the answer is incorrect, another learner in the group can answer.
- The learners remain in their groups. Give each learner 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 learners then take turns to pick up any two cards. The learner 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 learner in the group can give the correct answer and keep the cards. At the end of the game the learner with the most cards wins.
- Tell the learners to put the first set of cards aside.
- Give the groups of learners a new set of blank cards on which they write a three-digit number in denominations of hundreds. Again the learners shuffle the cards, place them face down and start a new game.
- Tell the learners to put the second set of cards aside.
- Hand out a third set of blank cards on which the learners write a four-digit number in denominations of thousands. Again the learners shuffle the cards, place them face down and start a new game.
- Give the learners 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 value cards, for example:

80 + 10	90
8 + 1	0 + 0
400 + 300	700
400 + 300	700

Give the learners practice with **mental addition** by doing: *Learner's Book*: Module 1, Activities 55–57, 62 *Workbook*: Worksheets 27–28

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

problem-solving, explaining, calculating, communicating, working with numbers, explaining, communicating, reasoning, cooperating in a group, taking turns

Resources

number chart; number line; counters; crayons; paper and pencils; counters; concrete objects; number cards for 100s; 10s and 1s; number sentence cards

Concepts

addition

Vocabulary

solve, check, solution, estimate, calculate, add, hundreds, tens, ones

Addition by carrying over

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

Learning experiences

Lesson focus

- Remind learners of the activities involving carrying over that they did in Grade 2. Revise a few examples on the board.
- Start with tens and then progress to one hundreds.
- Remember that there are different methods of adding and there is no incorrect way if the answer is correct.
- Introduce the thousands column (Th) for writing number symbols.
- Do a few examples on the board and encourage learners to complete them on their own.

Give the learners practice with **addition by carrying over** by doing:

Learner's Book: Module 1, Activities 63–69 *Workbook*: Worksheets 27–29

II Subtraction

Starting off

Do a variety of counting activities with the class.

Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

problem-solving, explaining, calculating, communicating, working with numbers

Resources

number chart; number line; counters; crayons; paper and pencils; concrete objects; flashcards

Concepts

subtraction

Vocabulary

subtract, minus, take away, equals, solve, calculate, solution, check, difference

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the learners to do.

Learning experiences

Lesson focus

- Prepare flashcards with the words **take away**, **minus** and **subtraction**, the subtraction sign '-' and the addition sign '+'. Ensure that each learner has a few counters. (For example, stones, buttons, match sticks or bottle tops).
- Do a few basic subtraction sums with the learners to revise Grades 1 and 2 work.
- When you are satisfied that the learners are confident with subtraction, progress to larger numbers.
- Write the sum on the board for the class to see. Write the number sentence as:
 OOOOOOOOOOOOOØØØØØØØ
 20 8 = 12
- This is very helpful for revising work done in Grades 1 and 2.

Give the learners practice with **subtraction** by doing: *Learner's Book*: Module 1, Activity 70 *Workbook*: Worksheet 30

Subtraction using hundreds, tens and units

Learning experiences

Lesson focus

- Write a simple horizontal number sentence on the board. For example:
 - 52 10 = . . .
- Ask the learners 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 sums on the board. Make sure that the values you subtract are always less, for example: 25 - 13, 14 - 3 and 33 - 12.

Skills

problem-solving, explaining, calculating, communicating, working with numbers

Resources

number chart; number line; counters; crayons; paper and pencils; concrete objects; flashcards

Concepts

subtraction

Vocabulary

subtract, minus, take away, equals, solve, calculate, solution, check, difference

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



• Explain that 8 subtracted from 9 gives you 1.

Hundreds	Tens	Units
1	2	9
	2	8
		1

• Explain that 20 subtracted from 20 gives you zero.

Hundreds	Tens	Units
1	2	9
-	2	8
	0	1

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

Hundreds	Tens	Units
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 always less, for example, 487 213, 905 804 and 678 123.
- Remind the learners that they must write single figure numbers under the ones. As you continue with the sums, encourage the learners to do the sums on their own. Do all the examples on the board for the learners to copy into the exercise books. They ask their partners to confirm that they have copied the sums correctly from the board.

Give the learners practice with **subtraction** by doing: *Learner's Book*: Module 1, Activities 71–73 *Workbook*: Worksheets 31–32

Subtraction using hundreds, tens and units with carry over

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

problem-solving, explaining, calculating, communicating, working with numbers

Resources

number chart; number line; counters; crayons; paper and pencils; concrete objects; flashcards

Concepts

subtraction, carrying over

Vocabulary

subtract, minus, take away, equals, solve, calculate, solution, check, difference, carry over

Learning experiences

Lesson focus

• Explain that in subtraction, if the ones value that you are subtracting is greater that the one you are subtracting from, you fetch ten units from the Tens column. This is similar to adding ones that are greater than 9, and we carry over to the Tens column. For example:

Tons Units

lens	Unit
4	2
- 2	9
1	3

- 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 learners that because we took away 1 Ten from the 4 tens, we have 3 tens.
 - Tens Units 3 12 $-\frac{2}{1}$ 9 $\frac{9}{1}$ 3
- Do a few more sums on the board and ask the learners to give answers. Guide and help as necessary.
- Once you think the learners have had enough practice, introduce Hundreds in subtraction. Write this sum on the board.

Hundreds	Tens	Units
1	2	2
_	2	9

• 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 learners that because we took away one Ten from the two tens, we have one ten.

Hundreds	Tens	Units
0	11	12
_	2	9
		3

• Explain that we cannot subtract 20 from 10, but if we fetch 100 from the Hundreds, then we can subtract 20 from 110. Remind the learners that because we took away one Hundred from the 100, there are now 0 hundreds.

Hundreds Tens Units 0 11 12 $- \frac{2 9}{9 3}$

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

Give the learners practice with **subtraction by carrying over** by doing: *Learner's Book*: Module 1, Activities 74–75 *Workbook*: Worksheets 33–34

Subtraction problems

Learning experiences

Lesson focus

- At first the learners 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 make flashcards.
 - Display the flashcards where all the learners can see them. Ask the learners to read them aloud. Constantly add words when necessary.
 - Use these words to make up additional word problems.
 - Encourage learners 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 learners 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 learners give their solutions, but guide them by using carrying over to find the correct answer.

Give the learners practice with **solving word problems by subtraction** by doing: *Learner's Book*: Module 1, Activities 63–65, Activities 76–77 *Workbook*: Activity 35–36

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

problem-solving, explaining, calculating, communicating, working with numbers

Resources

number chart; number line; counters, crayons; paper and pencils; concrete objects; flashcards

Concepts

subtraction

Vocabulary

subtract, minus, take away, equals, solve, calculate, solution, check, difference

12 Multiplication

Starting off

Do a variety of counting activities with the class.

Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

problem-solving, explaining, calculating, cooperating in a group

Resources

number chart; number line; counters; crayons; paper and pencils; concrete objects; flashcards

Concepts

grouping

Vocabulary

group, same, equal amounts

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

problem-solving, explaining, calculating, cooperating in a group

Multiplication as repeated addition

Learning experiences

Lesson focus

- Repeat the introduction used in Grade 2 by asking ten learners to stand in front of the class. Count the number of learners aloud.
- Ask the learners what the sum of the learners in front of the class is.
- Pair off the learners and tell each pair to hold hands. Ask the learners how many groups of learners there are.
- Explain that if we count the pairs we get 5.
- Revise the difference between the multiplication sign (x) and the addition sign (+).
- Encourage the learners to discuss the differences.
- Write the number sum on the board.
 2 + 2 + 2 + 2 + 2 = 10
- Explain that this is the same as saying: 5 groups of 2 = 10
- Another way of saying this would be:
 5 × 2 = 10
- In other words, we can say that multiplication is repeated addition of equal amounts.
- Do a few more examples for learners to become familiar with the concept.
- Encourage learners to learn the times tables daily.

Give the learners practice with **multiplication** by doing: *Learner's Book*: Module 1, Activities 78–83 *Workbook*: Worksheets 37–41

Multiplication: hundreds, tens and units with no carrying over

Learning experiences

Lesson focus

- Start by reciting the times tables.
- When learners are able to do repeated addition and grouping, can write a multiplication sentence and are familiar with the times tables, introduce them to another method of multiplication.
- Write this multiplication sentence on the board:
 124 × 2 = _____
- Ask learners to read the sentence aloud and to discuss how they think they should find the solution.
- Explain that another way of writing the sentence is:

Hundreds Tens Units 1 2 4 \times 2

Resources

number chart, number line, counters, crayons, paper and pencils, concrete objects, flashcards

Concepts

grouping

Vocabulary

group, same, equal amounts

- Ask the learners if they can see the similarity between addition and multiplication. It is important for them to notice where the hundreds, tens, units and multiplication sign are placed.
- Explain that as they did in addition, they must start with the column on the right (the lowest numbers) and work up to the column on the left (the highest numbers). Emphasise that we times or multiply at each stage. So first they work out $4 \times 2 = 8$. Write the 8 under the ones column.
- Next they work out 2 × 2 = 4. Write the 4 under the tens column.
- Then they work out 1 × 2 = 2. Write the 2 under the hundreds column.
- Do a few more examples for the learners to become familiar with the concept. Remember that there should be no carrying over at this stage.

Give the learners practice with **multiplication with no carrying over** by doing: *Learner's Book*: Module 1, Activities 84–85 *Workbook*: Worksheet 42

Multiplication: hundreds, tens and units with carrying over

Learning experiences

Lesson focus

- Start with reciting the times tables.
- Write this sum on the board:

Hundreds Tens Units 4

	1
×	4

- Ask the learners if they can write down the answer. Ask a learner to explain how they worked out the answer.
- Explain that $4 \times 4 = 16$. We write the 6 in the Ones column and carry over the one 10 to the Tens column. This is similar to addition.
- Write this sum on the board:

Hundreds	Tens	Units
1	0	2
×		4

The learners should notice that there is nothing in the tens column, so 0 × 4 = 0. Explain that anything times 0 is always 0. Prove this by adding: 0 + 0 + 0 = 0. No matter how many more 0s we add, the answer will remain 0. When carrying over in multiplication, first do the times and get an answer and then add the carry-over number.

Do a variety of counting activities with the class.

Starting off

Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

problem-solving, explaining, calculating, cooperating in a group

Resources

number chart; number line; counters; crayons; paper and pencils; concrete objects; flashcards

Concepts

grouping

Hundreds	Tens	Units
1	0	5
×		2
2	1	0

- Add the carry-over 1 tens to 0 and write 1 in the tens column.
- Reinforce these concepts until you are sure that the learners are confident and understand the concept. Here are a few more examples:

 $12 \times 6 = 72$ $19 \times 2 = 38$ $31 \times 7 = 217$ $155 \times 4 = 620$

Give the learners practice in **multiplication with carrying over** by doing:

Learner's Book: Module 1, Activities 86–87 *Workbook*: Worksheet 43

Vocabularygroup, same,equal amounts• Add the

I3 Division

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/

Module 2 for the learners to do.

Skills

problem-solving, explaining, calculating, cooperating in a group

Resources

number chart; number line; counters; crayons; paper and pencils; concrete objects; flashcards

Concepts

grouping

Vocabulary

group, same, equal amounts

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

problem-solving, explaining, calculating, cooperating in a group

Learning experiences

Lesson focus

- Start by reciting the times tables.
- Draw a division sign on the board and ask if the learners can identify it. Discuss what the division sign stands for. Revise the introduction lesson from Grade 2 to reinforce the concept.
- Put out twenty objects and ask the learners if they can divide the objects into four equal groups.
- Remind the learners that there are different methods of dividing.
- In one method of dividing you subtract the number of groups repeatedly until you get 0. The number of times you subtract equally is the number that the number is divisible by.
- Another method is sharing into equal groups until you get 0.
- Write the division sentence $20 \div 4 = 5$ on the board.
- Explain to the learners that they are dividing 20 by 4 and that equals 5.
- Do a few more examples where there are no remainders. For example:

 $36 \div 6 = 6$ $48 \div 4 = 12$ $50 \div 10 = 5$ $60 \div 6 = 10$

• Repeat these examples until the learners are confident with the concept.

Give the learners practice with **dividing** by doing: *Learner's Book*: Module 1, Activities 88–89

Long division: tens and units

Learning experiences

Lesson focus

- Start by reciting the times tables.
- Write the division sentence $8 \div 2 = ...$ on the board.
- Explain to the learners that when they start working with bigger numbers, the previous methods of division are too slow. Explain that to share or subtract will take too long.
- Tell them there is a quicker method to use for both small and big numbers.
- Write 2 8. Tell the learners that this is another way of writing the division sentence.
- Explain that long division requires the learners to have a basic knowledge of the times tables. This is because we break down numbers into smaller parts that we can handle.
Resources

number chart; number line; counters; crayons; paper and pencils; concrete objects; flashcards

Concepts

grouping

Vocabulary

group, same, equal amounts, bring down

- Explain that, unlike multiplication, you start on the highest column and work your way to the lowest column.
- First start by checking if the 2 can divide into the 8.
- You can estimate it to be 3, so write the 3 above the number it is dividing into. Multiply $2 \times 3 = 6$ and write that below the 8. Then subtract the 6 from the 8 which gives 2. 3
 - 28
 - 6
 - 2
- Explain to the learners that 2 left over (remaining) can still be subtracted from 2, so they can try a higher number.
 - 4
 - 28
 - $\frac{8}{0}$
- This is the correct answer for this sum because if you divide 8 by 2 the result is 4. When we subtract the 8 from 8, the value is 0. Show the learners that the answer is on top of the line.
 - Repeat the long division process. First estimate how many times the divisor can be divided into the first digit of the sum. (Tell the learners that when they know their tables, their estimates will be closer.)
 - Write $15 \div 3 = ...$ on the board. Reinforce the concept that in long division you always start with the highest column and work towards the lowest column. It is important that the learners understand that they need to work through all the columns before the sum is complete.
 - In this sum, 1 cannot be divided by 3. We carry over the 1 to the 5 and the number we are dividing into becomes 15.
 - 5 3 15
 - 15
 - 00
 - Constantly prompt the learners for responses or queries.
 - Do this sum on the board:
 - $75 \div 5$ 1 $5 \boxed{75}$ 5
 - $-\frac{5}{2}$
 - Explain to the learners that the maximum number of times the number can be divided into the column that they are working with can never be greater than the number they are dividing into. Look at the example above. If the learners use 2, $5 \times 2 = 10$ and 10 is greater than 7.
 - So they would need to use 1. We say that $1 \times 5 = 5$ and we are then left with 2.

- Remind the learners that there is still one more column, and that they must use all the columns. Then bring down that next column down.
 - 1 5 75
 - $-\frac{5\downarrow}{25}$
- Explain to the learners they are working with the result of the subtraction and not the 7 because part of the sum has already been solved. They must then divide 25 by 5.
 - 15 5 75

 - $-\frac{5}{25}$
 - $-\frac{25}{00}$
- Do the next sum on the board: $40 \div 4 = \dots$ In this sum 4 can be divided by 4.
 - 1 4 40 $-\frac{4}{0}$
- When you subtract the result is 0, but there is still a 0 in the next column. Say again that you have to use all the columns to complete the sum. When this occurs that zero is moved into the answer.
 - 10 4 40 - 4
 - $\overline{0}$
- If the learners check their times tables they will confirm that $4 \times 10 = 40$. They have solved all the columns in the sum.
- Repeat a few more examples where the number ends with 0. For example: $60 \div 3$; $80 \div 2$.
- This concept uses multiple concepts (divide, multiply and subtract). Give the learners plenty opportunity to practise this method. Create more exercises, but make sure there are no remainders in the answers.

Give the learners practice with **long division** by doing: Learner's Book: Module 1, Activity 90

Long division: checking

Starting off

Do a variety of counting activities with the class.

Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

problem-solving, explaining, calculating, cooperating in a group

Resources

number chart; number line; counters; crayons; paper and pencils; concrete objects; flashcards

Concepts

division, multiplication, subtraction

Vocabulary

group, same, equal amounts, bring down

Learning experiences

Lesson focus

- Start by the reciting the times tables with the learners.
- Explain to the learners that $4 \times 5 = 20$ but that we can also say $20 \div 4 = 5$ and $20 \div 5 = 4$.
- Explain that because they used multiplication when doing long division, they can use multiplication to confirm the answer.
- Demonstrate this to the learners by doing this problem on the board using long division: $315 \div 3 = 105$.
- Use multiplication to check the answer and prove that $105 \times 3 = 315$.
- Do a few more examples until you feel the learners understand the concept. For example:
 - $488 \div 4 = 122$ $125 \div 5 = 25$ $300 \div 6 = 50$

Give the learners practice with **checking division** by doing: *Learner's Book*: Module 1, Activities 91–93 *Workbook*: Worksheet 44

14 Mental calculations

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the

Skills

counting, calculating

learners to do.

Resources

number charts; counters; number lines; paper; books; pencils; mental cards (page 143); three or four dice or wooden blocks with numbers written on them in koki pen

Concepts

addition, subtraction, multiplication, division

Vocabulary

calculate, add, subtract, minus, multiply, times, divide

Learning experiences

Lesson focus

• Divide the learners into pairs. Give each pair a set of mental calculation cards with solutions to at least 50 examples (write the answer on the back of each card). These cards have addition, subtraction and multiplication sums on them. For example:



- The learners take turns to shuffle the cards and hold up a card for their partner to see. The partner gives the answer to the sum. If the answer is correct, the learner keeps the card. At the end of the game, the learners must take the cards that they could not answer and solve the sums using counters, if necessary. Get learners to write down their calculations.
- Divide the learners into groups of four. Give each group two dice. One learner throws the dice and adds the numbers. The learner then throws the dice again and subtracts the numbers. The same learner throws the dice and multiplies the numbers. The learner who throws the dice must always give the answer. The other three learners check the answer to confirm that it is correct. If the answer is incorrect, another learner answers. Learners take turns to throw the dice.
- Learners remain in their groups for this activity. Give each learner five blank cards. Ask them to write a different one-digit number on each card, and to place all the cards face down in the middle of the group. Learners then take turns to pick up any two cards and add the two numbers. If the answer is correct, they keep the cards. At the end of the game, the learner with the most cards wins.
- You could add another set of cards with two-digit numbers. Combine both sets of cards, shuffle them and continue the game in the same way.
- You could also give the learners short speed tests on the basic operations with solutions to at least 50.

Give the learners practice with **mental calculations** by doing: *Learner's Book*: Module 1, Activities 106–108 *Workbook*: Worksheets 45–51

They can do these activities over a few lessons and as homework tasks.

15 Building up and breaking down numbers

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

counting, calculating, explaining, communicating, problem-solving

Resources

number charts; tape measures; wax crayons; koki pens; newsprint; pencils; books; paper

Concepts

number concept, breaking down

Vocabulary

building up, breaking down

Learning experiences

Lesson focus

• Write a three-digit number on the board, for example 468. Ask the learners 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

- Divide the learners into pairs. Give each pair a sheet of paper and a wax crayon or koki pen.
- Ask the learners to choose a three-digit number and to write it down on their paper.
- Explain to the learners 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 learners to do calculations by breaking down numbers using their methods. Firstly do an example with them, such as the one below. The learners could solve this calculation in various ways, but emphasise that they must use their methods.

348 + 135 340 + 130 = 470 8 + 5 = 13470 + 13 = 483

• Get the learners 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.

Give the learners practice with **building up and breaking down numbers** by doing: *Workbook*: Worksheet 52

16 Doubling and halving

Starting off

Do a variety of counting activities with the class.

Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

counting, identifying, problem-solving, explaining, communicating, cooperating in a group

Resources

number charts; counters; number lines; tape measures; paper; books; pencils

Concepts

double, half of

Vocabulary

double, half of

Learning experiences

Lesson focus

- The learners work in pairs on the mat or at their desks. Give each pair a container with counters in it.
- Choose a couple of learners to demonstrate to the class how the activity works. Ask one learner to put out a few counters. Tell the other learner to double this number of counters. If the learner does not know what to do, explain that **doubling** means two of the same number. So the learner has to put out exactly the same number of counters next to the first counters.
- Then ask what the total of the two numbers is. Double ... is

(Use the numbers that were put out).

- Let the pairs of learners do this activity a few of times.
- They could also do the same activity using number cards instead of counters.
- Give each pair of learners a few dice. Let them take turns to throw the dice and then double the numbers.
- While doing the doubling activities, let the learners also do halving. One learner in each pair asks the other learner to halve the number that was put out.
- Give each pair of learners a **Snakes and ladders** game board (see the photocopiable sheets on page 146–147), a dice, a sheet of paper and a pencil.
- Explain that they must throw the dice and count out the numbers on the board.

If they go up a ladder, they double the number they land on and record it on the paper.

If they go down a snake, they halve the number they land on.

If they move to a number without a snake or a ladder, they choose whether to halve or double that number.

• The learners record all their doubled and halved numbers. When the game is over, they add up their totals. The learner with the highest total is the winner.

Give the learners practice with **doubling and halving** by doing:

Learner's Book: Module 1, Activities 94–98 *Workbook*: Worksheets 53–57

I7 Rounding off

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

counting, problemsolving, explaining, communicating, cooperating in a group

Resources

number charts; counters; number lines; tape measures; flashcards; sum cards in envelopes or a container

Concepts

rounding off

Vocabulary

round off

Learning experiences

Lesson focus

- Let the learners work in pairs on the mat or at their desks. Give each pair a tape measure, counters and Prestik.
- Draw a number line from 40 to 60 on the board. Ask a learner to identify the number 50. Stick a counter above the number with Prestik. Then ask the learners to identify 56 on the number line. Put a counter above 56.
- Explain that you are going to **round off** the number 56 to the nearest ten. When we round off numbers to the nearest ten, we round off the number to the nearest multiple of 10. Ask the learners which ten is nearest to 56. Is it 50 or 60? They should say 60. Ask a learner to move the counter above 56 to 60. Repeat this exercise with different numbers.
- Now ask a learner to put a counter above the number 185 (a number ending in 5 is between two multiples of 10).
- Explain to the learners that if a number ends in 5, we round off to the greater of the two multiples of ten. So 185 rounded off will be 190. Ask a learner to move the counter above 185 to 190.
- Divide the learners into pairs. One learner in each pair asks the other learner to round off specific numbers. The other learner identifies the number on the tape measure or a number chart and rounds off the number. They swap places so each learner has a turn to ask questions and to round off numbers.
- Explain to the class that when we calculate numbers, we can also round off the numbers to **estimate** the answers. For example, we can estimate the answer to 27 + 9 by saying:
 - 30 + 10 = 40.

Explain that we rounded off 27 to 30 and 9 to 10. The estimated answer is 40.

• Give each learner pair two or three sums written on cards. Ask them to estimate the answers by rounding off the numbers. Encourage them to check each other's answers.

Give the learners practice with **rounding off numbers** by doing: *Learner's Book*: Module 1, Activities 99–105 *Workbook*: Worksheets 58–59

Content area/Module 2 Patterns, functions and algebra

The learners should do pattern activities every day. In this module we have set out activities for you to choose from. The pattern activities provided in the *Learner's Book* and *Workbook* are not meant to be done in isolation, but as a part of the Mathematics lesson every day.

Patterns provide a means for developing manipulation skills. They also teach learners how to investigate, sequence and analyse to help them make sense of a situation. Patterns enable the learners to see relationships and use mathematical language to communicate those relationships. Working with patterns also sets a basis for generalising, drawing conclusions and for problem solving. These are all important processes in mathematics.

In this module you will be given step-by-step guidelines on how to teach the concepts covered in this content area.

I Copying patterns

Learning experiences

Lesson focus

- Take a variety of objects and/or shapes and arrange them in a specific pattern on a table or the mat. Make sure the learners can all see your pattern.
- Divide the learners into groups. Give each group a variety of objects and shapes similar to the ones you used. Ask them to copy the pattern you have made.
- Encourage the learners to talk about and describe the colours, shapes, objects and sizes as well as the flow and **sequence** of the pattern. Then ask the learners to draw and colour in the pattern on paper or in their exercise books.

Note: The learners should copy patterns practically first, using concrete objects.

Give the learners practice with **copying patterns** by doing: *Learner's Book*: Module 2, Activities 1–4 *Workbook*: Worksheets 60–61

Starting off

Do a variety of counting activities with the class.

Skills

describing, identifying, recognising, sequencing, creating, drawing, copying, interpreting, analysing, observing, explaining, thinking

Resources

concrete objects such as beads, blocks and sticks; different shapes; scissors; number charts; tape measure or number line; counters; books; paper; pencils

Concepts

pattern

Vocabulary

copy, extend, sequence, complete, describe

2 Sequencing and completing patterns

Starting off

Do a variety of counting activities with the class.

Learning experiences

Note: These practical activities with pattern form the basis for understanding number patterns.

Lesson focus

- Arrange matchsticks, shapes, blocks or beads to form the beginning of a pattern which has a specific sequence, but leave the pattern incomplete. Make sure all the learners can see your pattern.
- Work with the whole class. Ask the learners to look at the pattern you have made and to talk about the sequence. For example: How many matchsticks does the pattern begin with? What shapes does it make? What colour does this pattern begin with? What shapes follow next?
- Then ask a few learners to complete the pattern you started.
- Encourage the learners to discuss and describe the pattern as they build it. Once they have completed a few repetitions of the pattern, let each learner draw the pattern and colour it in.
- Now write a number pattern on the board, but leave it incomplete. Ask the learners to look at the numbers to see if they can recognise the pattern. Ask questions about the pattern.
- Ask the learners to complete the number pattern on the board in their exercise books.
- Learners can do the activities over a few lessons and as homework tasks.

Give the learners practice with **sequence and completing patterns** by doing:

Learner's Book: Module 2, Activities 5–9 *Workbook*: Worksheets 62–65

3 Creating and describing patterns

Starting off

Do a variety of counting activities with the class.

Learning experiences

Lesson focus

- The learners work in groups on the mat or at their desks. Give each group a variety of objects.
- Ask them to use the objects to create their own patterns. Encourage the learners to talk about the patterns they are making. Then let them draw the patterns in their exercise books and colour them in.
- Ask each learner to cut paper into strips of even width and length. They could use coloured paper or colour in the strips of paper. Then ask them to weave the strips of paper. They could join the ends with glue or Prestik.
- The learners could also create a pattern using different colours. Once they have finished weaving the paper, let them describe and talk about their patterns. Display their work in the classroom.
- Learners work in pairs to complete Activity 10 on page 132 of the *Learner's Book*. This activity requires learners to talk about African huts, describe them, discuss how they think the huts are made and where they are found. After discussing this in pairs, let the learners report back to the class. Use this as an opportunity to give your input if necessary.

Give the learners practice with **creating and describing patterns** by doing: *Learner's Book*: Module 2, Activities 10–11 *Workbook*: Worksheet 66

Content area/Module 3 Shape and space

Each of the following units gives you step-by-step guidelines on how to teach the concepts covered by this control area.

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

identifying, describing, comparing, drawing, recognising, labelling, matching, reading, observing

Resources

a variety of boxes; magazines; 2-D shapes, containers or objects of various shapes and sizes; flashcards with names of shapes; prepared charts with drawings of shapes; number charts; tape measure; pencils; books; crayons

Concepts

pyramid, cone, prisms, spheres, cylinders, 3-D, 2-D, circle, square, rectangle, triangle

Vocabulary

two-dimensional, three-dimensional, pyramid, cone

I Identifying shapes

Learning experiences

Lesson focus

- Divide the learners 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 learners 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 learners to tell you what shape the object is.
- Display a chart with drawings of the shapes and flashcards with the names of the shapes.
- Point to each shape in turn and say the name of the shape. After you say the name, ask a learner to choose the correct flashcard and to match it to the correct drawing on the chart. Continue until the learners have used all the flashcards to label the chart.
- Then show the learners 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 learners to identify all the shapes they have seen in magazine pictures.
- Let the learners do the activities over a few lessons as well as for homework.

Give the learners practice with **identifying shapes** by doing: *Learner's Book*: Module 3, Activities 1–2 *Workbook*: Worksheets 67–68

2 Describe, sort and compare shapes

Starting off

Do a variety of counting activities with the class.

Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

describing, sorting, comparing, observing

Resources

3-D objects; 2-D shapes; books; pencils

Concepts

physical characteristics of shapes

Vocabulary

curved surface, round surface, faces, flat face, edges, curved edges

Learning experiences

Lesson focus

- 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 learners will have to compare the shapes and objects.
- Let each group describe to the class how they sorted their shapes and objects. The learners 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 learners 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 learners 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 learners to discuss the pictures on pages 136 and 137 of the *Learner's Book*. Ask them to identify and describe the different kinds of shapes.

Give the learners practice with **describing**, **sorting and comparing shapes** by doing: *Learner's Book*: Module 3, Activities 3–6

3 Creative shapes

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

describing, drawing, following

Resources

3-D objects; drinking straws; Prestik; cut-out 2-D shapes; scissors; pencils; books

Concepts

3-D, 2-D

Vocabulary

create, construct

Learning experiences

Lesson focus

- Let the learners use cut-out 2-D triangles (see the photocopiable templates on page 149) 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 learners use cut-out shapes and/or 3-D objects (blocks, empty toilet rolls, and so on) that are in the classroom to make other shapes of their choice.
- Show the learners how to use drinking straws and Prestik to make cubes and cuboids. They will need scissors to cut the straws to the lengths they require, and Prestik or clay to join the straws at the corners. (The learners could also use toothpicks and jelly tots.)
- Get them to describe the shape and how they made it.

Give the learners practice with **creative shapes** by doing: *Learner's Book*: Module 3, Activities 7–8 *Workbook*: Worksheet 69

4 Symmetry

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the

learners to do.

Skills

cutting, drawing, describing, recognising, identifying

Resources

sheets with shapes; number chart; tape measure; counters

Concepts

line of symmetry

Vocabulary

line(s) of symmetry, broken line

Learning experiences

Lesson focus

- Give each learner sheets of paper with drawings of shapes on them (see pages 150–153). Tell them to find the sheet with the triangle on it.
- Ask them to fold the page in half horizontally 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 a 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 learners to explore this idea.
- Then ask the learners to find the sheets of paper with a circle and a square on them. They first fold the sheets 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 sheets.
- Let the learners decorate or colour their shapes to show the symmetry.

Homework

List five things at home or on your way home from school that are symmetrical.

Give the learners practice with **symmetry** by doing: *Learner's Book*: Module 3, Activities 9–10 *Workbook*: Worksheet 70

5 Different positions

Starting off

Do a variety of counting activities with the class.

Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

observing, describing, recognising, drawing

Resources

various objects; sheets of paper; pencils; number chart; tape measure; number line

Concepts

position

Vocabulary

view, top, bottom, side, front

Learning experiences

Lesson focus

- Put a learner's school bag or any other object on your table. Ask the learners to describe what they see when they look at the bag from the front. Do the same for the **side view** and the **top view**.
- Give the learners a sheet of paper each and ask them to draw the **front view** of the bag. Then let them draw the **side view**, the **top view** and the **bottom view**.
- Let the learners discuss the different views and compare their drawings with a partner.
- Repeat the activity with two or three different objects.

Give the learners practice with **describing and drawing different positions** by doing: *Learner's Book*: Module 3, Activity 11 *Workbook*: Worksheet 71

6 Maps

Starting off

Do a variety of counting activities with the class. Choose a pattern

activity from Content area/ Module 2 for the learners to do.

Skills

reading, interpreting, drawing, identifying

Resources

formal and informal maps

Concepts

map work

Vocabulary

left, right, front, behind, top, bottom, under, next to, in front of, middle

Learning experiences

Lesson focus

- Ask the learners questions to find out what they know about maps. For example: What is a map? What do maps look like? What do they tell us? Encourage discussion.
- Show them different kinds of maps. Ask them to identify and point out features on the maps.
- Then let the learners discuss their classroom. Ask them to talk about the objects in the classroom and where they are positioned. For example: Where is the table? Where is the cupboard? Learners should use words such as **left**, **right**, **opposite** and **next to** to describe where the objects are situated.

Homework

Draw a rough map of your route home from school.

Give the learners practice with **maps** by doing: *Learner's Book*: Module 3, Activity 12

7 Positional relationships

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

observing, describing

Resources

variety of objects

Concepts

position

Vocabulary

route, position, direction, left, right, opposite, next to

Learning experiences

Lesson focus

- Take an object and put it in a specific position in the classroom. For example, put a lunch box on your table. All the learners must be able to see the object clearly. Ask them to describe the position of the object. Learners should use words such as left, right, front, behind, top, bottom, under, next to, in front of, middle and between to describe the different positions of the objects.
- Divide the learners into groups of four and give each group an object. Learners take turns to put the object in a specific position in the classroom and to describe the position to their group.

Give the learners practice with **positional relationships** by doing: *Workbook*: Worksheets 72–73

Content area/Module 4 Measurement

This unit gives you step-by-step guidelines on how to teach the concepts covered in this content area.

I Measuring instruments

Learning experiences

Before the lesson, ask learners to bring measuring instruments for this lesson.

Lesson focus

- Place your measuring instruments and pictures of measuring instruments where all the learners can see them. Learners can keep their measuring instruments on or next to their desks.
- Point to a specific measuring instrument and ask the learners what it is and what is used for. If learners have brought duplicate instruments, ask them to tell the class what they are and what they are used for.
- Ask the learners what unit of measurement is used for each instrument.
- Circulate the various measuring instruments and allow the learners to examine and handle them. Ask the learners to put their measuring instruments on a table or on the mat.
- Have a class discussion on why we need measurement in our daily lives. The reasons may include: When we are sick we need to take medicine to get better. We need to measure accurately as too much medicine could be bad for you and too little will not heal you.

Homework

Record some of the measuring instruments in your home. Explain what they are used for.

Give the learners practice with **measuring instruments** by doing:

Learner's Book: Module 4, Activities 1–4 *Workbook*: Worksheet 74

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the learners to do.

Starting off

Skills

counting, estimating, measuring

Resources

thermometer; stopwatch; trundle wheel; tape measure; metre stick; ruler; spoons; scales; pictures of measuring instruments

Concepts

measurement, mass, capacity, length

Vocabulary

measuring instruments

2 Telling the time

12-hour time

Starting off

Do a variety of counting activities with the class. Choose a pattern

activity from Content area/ Module 2 for the learners to do.

Skills

counting, reading, telling digital and analogue time

Resources

calendars: cardboard; scissors; drawing pins; flashcards with *different times* written on them (e.g. 12:00/12 o'clock, 9:15/ *quarter past nine*) and different sentences relating to a.m. and p.m. (e.g. Sandy wakes up at 6:00___.); large chart with an a.m./p.m. clock face (copy the clock face from Activity 9, page 154 of the Learner's Book

Concepts

time

Vocabulary

digital time, analogue time, a.m., p.m.

Learning experiences

Lesson focus

- Give each group cardboard, scissors and a drawing pin.
- Tell the learners they are going to make clock faces. Ask them if they recall how to do this.
- Remind the learners to cut out the strips for the clock hands before they cut out the clock face.
- Show learners how to attach the clock hands to the clock face so that the hands can be moved.
- Check that each group is able to make the clocks and that the numbering and hands are correct. Give help and guidance where necessary.
- Once the learners have made their clocks, give each group a set of flashcards with different times written on them.
- The learners place the flashcards in the centre of the group. One learner picks up a flashcard and calls out the time. Another learner sets that time on the clock and shows the group. The rest of the group confirms whether the time is correct or not. If it is correct, the learner keeps the flashcard and the clock is passed to the next learner. The process is repeated until all the flashcards have been read.
- While the groups are busy, take one group at a time to the mat and observe and correct them as they play the flashcard game.
- Once the learners are able to tell and set time on the clock as well as read the flashcards, you are ready to introduce a.m. and p.m. (This does not have to be on the same day.)
- Place the a.m./p.m. clock face that you made where all the learners can see it.
- Demonstrate and explain to the learners that from midnight (12 o'clock) until midday (12 o'clock) it is a.m. (ante-meridian). Show them that from midday until midnight it is p.m. (post meridian). 12:00 (midday) i.e. 12 hours, zero minutes is 12 p.m. 12:00 (midnight) can be written as 00:00.
- Give the learners a few problems to solve so you can evaluate their ability to grasp the concept of a.m. and p.m. For example: You went to sleep at 8:00 ... last night. School starts at 8:00 ...
- Use the large chart with the two clocks and make sentences where learners have to add the a.m. or p.m. For example: We have tea at 3 My favourite television programme is at 5
- Let the learners demonstrate their answers on the chart.
- When you think the learners have had sufficient practice, divide them into groups. They play the flashcard game with the new flashcards.

Give the learners practice with **telling the time** by doing: *Learner's Book*: Module 4, Activities 5–7 *Workbook*: Worksheets 75–76

24-hour time

Learning experiences

Starting off

Do a variety of counting activities with the class.

Choose a pattern activity from Content area/ Module 2 for the learners to do. Before the lesson, prepare a second chart similar to your previous one with two clocks, except start the outer clock at 13 or the 1 o'clock position and continue it to 24 at the 12 o'clock position. Show whether it is day or night with shading. Let daytime start at 6:00 a.m. and end at 18:00 p.m.

Lesson focus

- Give the learners plenty practice in telling the time. Let them play the flashcard game, but this time mix the two sets of flashcards.
- While the groups are busy, take one group at a time to the mat. Observe, advise and question while they play the game.
- Once they are proficient with a.m./p.m., introduce the 24-hour clock to them. You need not do this on the same day.
- Using the 24-hour chart, explain and demonstrate to learners that the shaded area is night and the unshaded area is daytime.
- Explain that at 12 o'clock at night, the 24-hour clock begins at 00 hours, 00 minutes and 00 seconds to start a new day.

When we wake up at about 6:00 or 6 o'clock, the sun comes up. The sun gradually makes it way across the sky until 12:00 or 12 o'clock midday.

At midday the sun is directly above us. At this time we change from a.m. to p.m. At 1 o'clock it is 13:00, i.e. 13 hours since the day began. The sun now starts to move downwards.

At about 6:00 p.m., 6 o'clock or 18:00 the sun sets. Night begins and it lasts until midnight when the next day starts.

• Ask the learners questions about the 24-hour clock. Allow them to point out the time on the chart. For example: What is the time on the 24-hour clock when it is 3:00 p.m.?

Give the learners more practice with **telling the time** by doing: *Learner's Book*: Module 4, Activity 10 *Workbook*: Worksheet 77

3 Solving time problems

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/

Module 2 for the learners to do.

Skills

counting, calculating, reasoning, sequencing, problem-solving

Resources

cardboard; clocks

Concepts

problem-solving

Vocabulary

day, week, month, year

Learning experiences

Lesson focus

- Use the guidelines for problem-solving on pages 81–82 and adapt them to time. Give learners time problems to solve. For example: Sipho had homework. He worked from 1:00 p.m. until 1:30 p.m. How long did Sipho work?
- Do a few examples on the board.
- Start with simple problems using one hour, then half hours and finally minutes.
- Learners can use the cardboard clocks to solve some of the problems. For example: Nomsi watches television on Saturday from 8:30 a.m. to 10:30 a.m. For how long does she watch television? Get a learner to set one clock to 8:30 a.m. and another to 10:30 a.m. The learner shows the class and the class calculates the time spent.
- Give the learners plenty practice solving this type of problem by giving them oral and written examples. For example:

Eric had lots of homework. He began working at 4:15 p.m. and worked for 2 hours. What time did he finish?

• Write the problem on the board for all the learners to see. Select a learner to read it aloud. Ask another learner to set the large clock to 4:15 p.m. Then ask the learners to calculate the time Eric finished working if he worked for 2 hours. Ask a different learner to explain how they found the answer.

Give the learners practice in **problem-solving with time** by doing:

Learner's Book: Module 4, Activities 8–9 *Workbook*: Worksheet 78

4 Calendars

Starting off

Do a variety of counting activities with the class.

Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

listening, questioning, speaking, explaining

Resources

calendars

Concepts

time, lunar, leap year

Vocabulary

lunar, month, culture

Learning experiences

Lesson focus

- The learners should be familiar with the months of the year.
- Randomly place flashcards with the months of the year on the board.
- Select different learners to place the flashcards in the correct sequence.
- The learners read the names aloud when placing the flashcards on the board. They can also sing songs or say rhymes that relate to the months of the year.
- The learners should be familiar with calendars and how they work. Show them a current calendar with all the months, the details of weekends shaded in and public holidays highlighted in red. If the calendar has the school terms, show this to the learners.
- Ask the learners what they think the shaded and highlighted areas show?
- Talk to the learners about the week. Ask them how many days there are in a week and how many days there are in a weekend.
- Weekends are normally shaded on a calendar so that they can be identified easily.
- Introduce the learners to the calendars of different cultures.
- Explain the history of the calendar. You could do this by telling the learners a story. Make sure the learners know that most people use the Gregorian calendar. Learners should also understand what a leap year is and how leap years occur.
- Tell the learners that different people in different parts of the world use different calendars.
 - For example:
 - Hindus use a lunar 29-day, 12-month calendar. When there is a difference in the number of days between the solar year and lunar year, they add a lunar month, making it a 13-month calendar.
 - The Jewish calendar is based on a combination of the moon and sun. They have 12 months of 29 or 30 days. They also add a 13th month to make up the difference between solar and lunar years.
 - The Muslim calendar is based on a lunar cycle. There are 12 months of 29 or 30 days with no leap year or extra month. Each month begins with the new moon.
- Explain to the learners that most of the world uses the Gregorian calendar for everyday living. Some people use the cultural calendar only for religious occasions.
- After and during the story, respond to all the learners' questions about the topic.
- Once you have completed the story and explained the leap year, ask the learners to look at the current calendar and

decide whether it is a leap year or not. They should explain their answers.

Give the learners practice in **using calendars** by doing: *Learner's Book*: Module 4, Activities 12–13

5 Special days of the year

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

counting, identifying, reading

Resources

calendars; flashcards with months of the year

Concepts

special days

Vocabulary

day, week, month, year

Learning experiences

Lesson focus

- Ask the learners to explain what a public holiday is.
- Explain to the learners how to check which public holidays are on a calendar. Most calendars have an area where dates and holidays are shown for the year. Ask the learners what happens when public holidays fall on weekends. Make sure they understand that if a public holiday falls on a Saturday, it is lost but if it falls on a Sunday, the following Monday becomes a holiday.
- There are generally 13 public holidays a year in South Africa. They are:
 1 January – New Years Day
 21 March – Human Rights Day
 Good Friday – This varies from year to year
 Family Day – The Monday following Good Friday
 27 April – Freedom Day
 1 May – Worker's Day
 16 June – Youth Day
 9 August – Women's Day
 24 September – Heritage Day
 16 December – Reconciliation Day
 25 December – Christmas
 26 December – Day of Goodwill
- Use a current calendar to find the date for Good Friday.
- Briefly explain what all the public holidays are about.
- Select one or two holidays to study in detail. There is plenty of information available on special holidays.
- Once you have selected a special day, explain the details of that day as a story.
- Explain that special days need not be public holidays. For example, Mothers' Day, Fathers' Day, Arbour Day and birthdays are not public holidays.
- If you have learners with different cultures, let them discuss the special days in their cultures.
- Ask the learners: Why do we have many cultures and beliefs? Why don't all cultures celebrate their special days on the same day? Let learners give their explanations and opinions.
- As a homework project, the learners could ask parents or guardians to help them record a list of days that are special to their families.

Give the learners practice with **special days of the year** by doing: *Workbook*: Worksheets 79–80

6 Estimating mass

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/

Module 2 for the learners to do.

Skills

estimating, measuring

Resources

bathroom scale; kitchen scale

Concepts

mass, capacity, length

Vocabulary

mass, weight, estimate

Learning experiences

Lesson focus

- The learners should be familiar with **mass** and know how to determine how heavy or light an object is. (If not, revise Grades 1 and 2 lessons on mass.)
- Choose objects in the class for the learners to classify as heavy or light. For example, pick up a book and ask the learners if it is heavy or light.
- Find the strongest learner and ask them to lift the cupboard or any other heavy object. Ask the class whether the cupboard is heavy or light.
- Make sure that the learners know the measuring instruments as well as the unit of measurement for mass (i.e. a scale, gram, kilograms and tonnes).
- Ask the learners what they think we could measure in **grams**. Their answers may include a packet of chips, books, and so on. Then ask them what they think we could measure in **kilograms**. There answers may include a person's weight, vegetables, meat, and so on.
- Ask the learners what unit of measurement they will use to measure objects that weigh hundreds or thousands of kilograms, for example elephants, cars and whales.
- Now introduce the word **tonne** to the learners. Tell them that an object that weighs 1 000 kilograms weighs 1 metric tonne, and when an object weighs 1 500 kg we write 1,5 tonnes.
- Ask the learners if they can think of an English saying that uses the word **tonne**. For example, when objects are very heavy we say 'it weighs a tonne'.
- Ask the learners to think of:
 - 5 objects they can measure in grams
 - 5 objects they can measure in kilograms
 - 5 objects they can measure in tonnes.
- Learners should draw their objects, label them and put an estimate of the mass next to each object.
- Divide the learners into groups. Show them a bathroom scale and how it works.
- The learners take turns to weigh themselves. Some learners may prefer to do this on their own as they may be sensitive about their weight.
- Allow the learners to read the scale reading while you observe and check it for correctness.
- Once all the learners have been weighed, show the learners a kitchen scale and how it works.
- Give them objects to measure, for example a book and a pencil case.
- Firstly the learners must hold the object, estimate its mass and record their estimations. Then they measure the actual mass and record their answers.

- Tell the learners to compare the differences between their estimates and their actual measurements.
- Show the learners how a kitchen scale is used for lighter objects and a bathroom scale for heavier items. Ask learners why this is so.
- Hold up an object (for example a box of chalk, a board duster). Get the learners to estimate its mass. Record a few answers on the board.
- Ask the learners which scale they would use to measure the object and why they should use it.
- Measure and record the mass on the board. Then compare it to the learners' estimates.
- Do a few more examples to give the learners more practice.

Give the learners practice with **estimating mass** by doing: *Learner's Book*: Module 4, Activity 14

7 Measuring length

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from

Content area/ Module 2 for the learners to do.

Skills

estimating, measuring

Resources

rulers

Concepts

measurement, informal measurement

Vocabulary

estimate, measure, hand span, paces, foot lengths

Learning activities

Lesson focus

- The learners should be familiar with measuring with handspans, foot lengths and paces. (If not, firstly revise Grades 1 and 2 lessons.)
- Do a few activities to refresh the learners' skills. For example: Ask learners if they remembered how many handspans their desks were. Tell them that their hands may have grown and they need to estimate first.
- Remind them that a handspan is from the tip of the little finger to the tip of the thumb when their hands are extended.
- Tell the learners to measure their desks in handspans.
- Ask them if the measurement is the same as last year.
- The learners should work on their own for this activity. Give them a few examples to practise measuring with handspans, paces and foot lengths. Ask them to estimate first and then to measure. They should record their estimates and measurements in their exercise books. Here are examples of the objects learners can measure:
 - a friend's height
 - the width of the class
 - the height of the classroom door
 - the width of the window
 - the height of their desks.
- Once the learners have completed the activity, ask them to measure and draw a picture of one object to measure outside the classroom.
- While the learners are doing the above activity, get small groups of learners to work with you on the mat.
- Give each learner a ruler to examine. They tell you what they remember about it.
- Get the learners to point to the numbers and count aloud.
- Ask the learners what the numbers on the ruler stand for. Learners should use the word **centimetre**.
- Ask the learners to measure their hands. Explain that the 0 should be at the heel of the hand, and the reading or measure at the tip of the middle finger is the length of their hand.
- They may have to work in pairs if they cannot manage on their own.
- Observe and assist where required.
- Give the learners a few more examples to practise measuring with a ruler.
- Now work with the whole class. Ask the learners to count the numbers on the ruler forwards, backwards and in skip-counting.
- Show the learners how to use a ruler correctly.
- Give the learners practice in using the ruler as you move around checking and helping. You can ask them to

measure the length of their pencils or the width of their pencil cases, and so on.

Homework

How many steps do you take when you walk home from school or from your transport drop off point home?

Give the learners practice with **measuring length** by doing: *Workbook*: Worksheet 81

8 Measuring capacity

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the

learners to do.

Skills

ordering, matching, reading, listening, speaking

Resources

empty bottles of different sizes

Concepts

measurement, capacity

Vocabulary

capacity, estimate, difference, litre, millilitre

Learning experiences

Lesson focus

- The learners should be familiar with **capacity** and know how to determine how much a container can hold. (If not, firstly revise Grades 1 and 2 lessons on capacity.)
- Discuss the importance of measuring in **millilitres** and **litres**. Ask learners if they could follow a recipe if they could not measure in millilitres. Get learners to talk about how far they can travel if they do know how many litres of petrol are in a car.
- Place the bottles on the mat and ask learners to arrange them in order of size.
- Explain the difference between 15 ml and 1,5 ℓ .

Give the learners practice with **measuring capacity** by doing: *Workbook*: Worksheet 82

9 Measuring perimeter

Starting off

Do a variety of counting activities with the class.

Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

counting, measuring

Resources

containers of different shapes and sizes; string; ruler

Concepts

measurement, area, perimeter

Vocabulary

perimeter, area

Learning experiences

Lesson focus

- Bring to the lesson a few containers, cups or glasses of different shapes and sizes.
- Display the objects and ask the learners how they would measure the widths of these objects.
- Remind learners that they can only use a ruler to measure straight lines and not around objects.
- Let the learners give their opinions or show the class how to measure the containers.
- Write the word **perimeter** on the board. Read perimeter aloud and ask the learners if they know what it means.
- Let the learners to explain. Guide them to give a complete answer that you require. If they cannot answer correctly, explain that perimeter is the length or measure around an object.
- Show the learners a piece of string and ask them if it would help them measure around the containers.
- Let the learners explain or show how they could use the string to measure the perimeter of the containers.
- Guide the learners as they work.
- Ask the learners to work in pairs. Give each pair a piece of string and a container and ask them to measure around the container.
- Using one of the containers, show the learners how to measure the perimeter of a container. Place one end of the string on the container, circle the container and note where the string meets.
- Now place the string on the ruler with the beginning of the string at zero. Measure the length of the string to the point where you noted the perimeter length. Read the measure on the ruler to give the correct measurement of the perimeter of the container.
- Get pairs to swap containers so they can practise and check each others' measurements.

Homework

- 1 Measure the perimeter around the outside of your house in foot lengths.
- 2 Measure the area around the outside of your friend's house in foot lengths.

Give the learners practice with **measuring perimeter** by doing: *Learner's Book*: Module 4, Activity 15

IO Measuring area

Starting off

Do a variety of counting activities with the class.

Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

measuring area

Resources

exercise books; ruler

Concepts

area

Vocabulary

area, bigger, smaller, grid paper, squares

Learning experiences

Lesson focus

- Ask learners: How can we find out how many tiles to buy if we are going to re-tile the classroom?
- Allow learners to speculate, make suggestions and explain their choices.
- Then ask learners to look at their hands. Show them that if they measured their hands with a ruler they would know how long they are and how wide they are. But they will not be able to tell how much area their hands would cover.
- Learners can compare their hands with a partner's hands, but they will only know whose hands are bigger or smaller than the other's hands.
- Give each learner a sheet of grid paper. (See photocopiable grid sheet on page 155.)
- Ask the learners to place their non-writing hand with fingers together on the grid and to trace an outline.
- Tell the learners to count the number of squares inside the traced area. They can now compare the number of squares their hands covered with those of their friends' hands.
- To give learners more practice with area. They could redo the exercise with feet, with or without shoes.
- Get groups of about four learners to sit around a class desk.
- Give each group two exercise books of the same size and ask the learners to calculate the area of the desktop.
- Allow the learners to decide how they would use two books to measure the area of the desk.
- Observe and guide the learners. If necessary, show the learners how to use two books to measure area. Follow these steps:
 - Place one book in a corner of the desk. Count 1.
 - Place the second book next to the first book. Add 1 to your count.
 - Then remove the first book and place it on the other side of the second book. Increase the count by 1. You should now have 3.
 - Do this until you reach the end of the desk. Then place one book above the other and continue across the desk again until the whole area of the desk had been covered.
- The learners should remember to keep count of the areas of their books as they measure.
- Give learners practice measuring different surfaces, for example the teacher's desk, newspaper pages.

Give the learners practice with **measuring area** by doing: *Learner's Book*: Module 4, Activity 16 *Workbook*: Worksheet 83

Content area/Module 5 Data handling

The learners will cover the assessment standards below regularly when the work with data and graphs.

I Steps to graphing

Learning experiences

Lesson focus

- 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 learners to sort the counters into groups of the same colour.
- Ask the learners to list all the colours they have on the tally sheet and block graph. (Worksheet 85 on page 89 in the *Workbook*)
- Ask the learners 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 learners select one learner from their group to present their findings to the rest of the class.
- Circulate among the groups observing, guiding and assisting where required.

Homework

Follow the steps to data handling.

Ask 10 people at home, in your neighbourhood: What is your favourite colour?

Do a tally sheet, bar graph and data analysis of your findings.

Give the learners practice with **sorting data** and **drawing block graphs** by doing: *Learner's Book*: Module 5, Activity 1 *Workbook*: Worksheets 84–86

Starting off Do a variety of counting activities with the class. Choose a pattern

activity from Content area/ Module 2 for the learners to do.

Skills

collecting data, sorting data, displaying data, analysing data

Resources

Workbook; concrete counters such as coloured beads, buttons

Concepts

graphs

Vocabulary

sort, group, block graph, tally sheet, analyse, line graph

2 Line graphs

Starting off

Do a variety of counting activities with the class.

Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

displaying data, analysing data

Resources

Workbook; tally sheet

Concepts

line graph

Vocabulary

line graph, tally sheet, analyse, represent, least, most, vertical, horizontal, intersect, x-axis, y-axis

Learning activities

Lesson focus

- Explain to the learners that they can represent data in different ways. Ask them if they can list some of these ways. They should list tally sheets and graphs.
- Use a learner's data from the tally sheet on page 89 of the *Workbook*.
- Draw the outline of a graph on the board. Show the vertical axis (top to bottom) and the horizontal axis (left to right). Tell the learners that we can also call these the *y*-axis (vertical) and the *x*-axis (horizontal). Label the different columns on the horizontal axis with the names of different colours from the tally sheet. Label the vertical axis with the numbers for the buttons.
- Now show the learners how to create a line graph. Explain that instead of colouring in an area as they did with block graphs, they plot a specific point on the column in line with the correct row. (This is similar to the line graph on page 165 in the *Learner's Book*. Show them that if a snoek cost R8, you plot 8 on the first column by placing a large dot at that point.)
- Plot the information from your learner's tally table on page 89 of the *Workbook* on your graph. Explain what you are doing as you plot.
- Once you have plotted all points, draw a line through each point connecting it to the column next to it. This will result in a jagged line that represents the data.

Give the learners practice with **line graphs** by doing: *Learner's Book*: Module 5, Activity 2 *Workbook*: Worksheet 87

3 Venn diagrams

Starting off

Do a variety of counting activities with the class.

Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

counting, making choices, sequencing, observing

Resources

wool; board; flashcards with girl and boy and I am wearing a jersey written on them; strips of paper; Prestik

Concepts

data, intersection, Venn diagram

Vocabulary

Venn diagram, intersection, sorting, ordering

Learning experiences

Lesson focus

- Use different coloured wool to create two large circles on the classroom floor or outside the classroom.
- Ask a few boys and a few girls to come to the front of the class.
- Give one girl a flashcard that says **girl** on it and one boy a flashcard that says **boy**.
- Ask each learner to stand in a separate circle.
- Then ask the rest of the group to stand in the circle they think they should stand in.
- The boys should group in the boys' circle and the girls in their circle. Ask the learners to explain their choice.
- Tell the rest of the class to discuss what they observe about the two groups. Ask them questions such as: How many boys are there? How many girls are there?
- Then take the **boy** flashcard from the learner. Give a flashcard that says **I am wearing a jersey** to any learner wearing a jersey.
- Ask the learners in the circles to read the flashcard and decide if they are still in the correct groups?
- Let the learners move to the correct circles. Some boys will not have jerseys and will have to step out of the circle. Some girls will have jerseys but will not know in which circle to stand.
- Some learners may stand with a foot in each circle. When this happens, ask the rest of the class what they think should happen.
- If learners struggle to find a solution, suggest that they join the circles together to create an area big enough to hold the girls with jerseys.
- Rearrange the circles so that they intersect.
- Then ask the learners to stand where they think they should be. The girl learners with jerseys can now stand in the area where the two circles join.
- Ask the learners what they think the joined area is called. Tell them that it is called an **intersection**.
- Get the rest of the class to discuss what they observe about the two groups. Stimulate discussion by asking questions such as: How many girls are wearing jerseys? How many boys are not wearing jerseys?
- Ask the learners why the boys who are not wearing jerseys are not in a circle.
- Encourage the learners to see that the sort or selection has changed.
- Choose different groups of learners to do a few more examples using Venn diagrams.
- Draw two large intersecting circles on the board and give each learner a strip of paper.

- Ask the learners to write their names on the strips of paper.
- Choose two statements from the list below and label each circle accordingly:
 - I like fruit/I like vegetables.
 - I like watching television/I like reading.
 - I have a brother/I have a sister.
 - I like hot weather/I like cold weather.
- Label the intersection **both**.
- Ask a learner to read the statements aloud.
- The learners then paste their strips of paper in the area of their choice. Let each learner have one choice only.
- Repeat the activity using different statements.
- After each activity give the learners the opportunity to discuss their observations. Encourage them to analyse the data and draw conclusions.

Give the learners practice with **Venn diagrams** by doing: *Learner's Book*: Module 5, Activity 3 *Workbook*: Worksheet 88

4 Scatter graphs

Starting off

Do a variety of counting activities with the class.

Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

displaying data, analysing data

Resources

Workbook; strips of paper; Prestik

Concepts

scatter graph

Vocabulary

scatter graph, glance

Learning experiences

Lesson focus

- Give each learner a 5 cm × 1 cm strip of paper. Ask them to write their names on their strips.
- Draw a large square on the board and divide it into four equal quadrants.
- Write one of the four seasons in each quadrant.
- Ask the learners to paste their names in the quadrant that represents their favourite season.
- Once the learners have completed the task, explain that this is a scatter graph. We use scatter graphs to provide information at a glance.

Give the learners practice with **scatter graphs** by doing: *Learner's Book*: Module 5, Activity 4
5 Pie graphs

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

displaying data, analysing data

Resources

Workbook; tally sheet, pie graph (use the data from the tally sheet on page 89 of the **Workbook** – total the number of counters and divide the pie into equal parts)

Concepts

pie graph

Vocabulary

pie graph, line graph, tally sheet, analyse, represent, least, most

Learning experiences

Lesson focus

- Ask the learners to talk about the different ways in which we can represent data. They should talk about tally sheets, scatter graphs, Venn diagrams, bar graphs and line graphs.
- Ask learners how they would divide a pie among themselves and two friends. They should answer that they would divide the pie into three pieces.
- Draw a pie on the board and divide it into three equal pieces. Tell the learners that if they give each friend one piece, they would have one piece left. Shade two pieces in different colours (one for each friend) and the remaining piece in a third colour (for yourself). Explain to the learners that in pie graphs, the pieces do not have to be equal.
- Use the tally sheet on page 89 of the *Workbook* again.
- Ask the learners to add all the buttons or counters on the tally sheet. Record the total on the board.
- Stick your prepared pie graph on the board. Then count the pieces and make sure they match the sum of the buttons recorded on the board.
- Explain and show that a pie graph is similar to a bar graph in that we allocate a piece of the pie for each count on the tally sheet.
- Show the learners that each group of buttons or counters is shaded in a different colour on the pie graph.
- Get the learners to discuss their observations.
- Explain that this is a pie graph (or chart) and we use it to show the part of the total that represents an object.

Give the learners practice with **pie graphs** by doing: *Learner's Book*: Module 5, Activity 5 *Workbook*: Worksheets 89–90

6 Data from a table

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

displaying data, analysing data, interpreting

Resources

Workbook; tally sheet; chart of week's weather in your region (record minimum and maximum temperatures for each day)

Concepts

tables

Vocabulary

table, minimum, maximum, organised, vertical, horizontal, intersect, data, x-axis, y-axis

Learning experiences

• Before the lesson, ask the learners to collect the weather forecast from a daily newspaper for a week.

Lesson focus

- Ask learners to take out their records of a weekly weather forecast. Explain to them that when they were collecting the weather report for the week, they were collecting data. Make sure the learners understand what data means.
- Draw up a tally sheet that shows the minimum temperatures per day and the maximum temperatures per day.
- Point out that the days of the week are common to both tally sheets. Explain to the learners that they can create a table only when they have common items.

Day	Minimum	Maximum
Monday		
Tuesday		
Wednesday		
Thursday		
Friday		
Saturday		
Sunday		

- Place your weather chart in front of the class so that all the learners can see it. Then transfer the minimum temperatures onto the chart. Explain to the learners that this table is similar to a tally sheet.
- Transfer the maximum temperatures onto the chart and let the learners discuss what they observe on the chart.
- Guide learners to the concept of an 'organised tally sheet'.
- It is very important that learners know how to read data tables. Ask questions based on the data table. For example: How hot was it on Wednesday? How cold was it on Friday?
- Explain to the learners that data tables and graphs are used daily in many ways, but they are used mainly by businesses to track items.
- Learners need plenty of practice with tables and graphs. Reinforce the concept of the *x*-axis and the *y*-axis.

Give the learners practice with **using data** by doing: *Learner's Book*: Module 5, Activities 6–8

7 Fun with graphs

Starting off

Do a variety of counting activities with the class. Choose a pattern activity from Content area/ Module 2 for the learners to do.

Skills

representing data, analysing, comparing, making choices

Resources

2-litre plastic bottles; funnel; water; sand; matchboxes; small cups; flashcards

Concepts

graphs

Vocabulary

fun, difference, funnel, matchbox, stack, peg

Learning experiences

Lesson focus

- Select a group of ten learners.
- Take four 2-litre bottles and add a few drops of different food colouring to each bottle.
- Label each one with the name of a different fruit.
- Ask the learners to choose their favourite fruit.
- The learners choose a bottle. They fill cups with water and use funnels to add the water to their bottles.
- After the learner have filled their bottles, get the class to analyse the results by comparing the water levels in the bottles.
- Ask each learner to bring an empty matchbox to school.
- Ask learners a question which requires them to make a choice. For example: Which subject do you enjoy most Reading, P.E., Mathematics or Art?
- Place a flashcard of each subject at the edge of your table.
- Ask the learners to place their matchboxes in a stack above their choice.
- After each learner has made their choice, ask the class to analyse the results by comparing the heights of the matchbox stacks.
- Prepare a chart that is divided into two columns. Number each column from the bottom to the top to correspond with the number of learners in the class. Give each learner a clothes peg.
- Ask a question where the learners have a choice between two items. For example: Do you prefer watching cartoons or music videos?
- The learners make their choices and place their pegs in the column of their choice, starting from 1 and moving up one number at a time.
- Analyse the result. You can easily do this as each column is numbered.
- Ask questions based on the graph. For example: What is the class favourite? What is the difference between the two choices?
- Give the learners other choices with two possible answers.

Give the learners practice with **fun graphs** by doing: *Learner's Book*: Module 5, Activity 9

Part 4 Teaching aids: Photocopiable sheets

Number charts

901	902	903	904	905	906	907	908	909	910
911	912	913	914	915	916	917	918	919	920
921	922	923	924	925	926	927	928	929	930
931	932	933	934	935	936	937	938	939	940
941	942	943	944	945	946	947	948	949	950
951	952	953	954	955	956	957	958	959	960
961	962	963	964	965	966	967	968	969	970
971	972	973	974	975	976	977	978	979	980
981	982	983	984	985	986	987	988	989	990
991	992	993	994	995	996	997	998	999	1 000

Number grids

Vocabulary cards

equal to

greater than

less than

between

before

after

smallest

biggest

lowest

highest



Number symbol cards



ten

twenty

thirty

forty

fifty

sixty

seventy

eighty

ninety

ninety-one

ninety-two

ninety-three

ninety-four

ninety-five

Number name cards

ninety-six

ninety-seven

ninety-eight

ninety-nine

one hundred

two hundred

one thousand

Ordinal name cards

first

second

third

fourth

fifth

sixth

Ordinal name cards

seventh

eighth

ninth

tenth

eleventh

twelfth

Value cards









Mental cards



Fraction cards



 $\frac{1}{2}$ of 24

 $\frac{1}{3}$ of 21

 $\frac{1}{4}$ of 40



Hundred squares

Ten bar

Units

Snakes and ladders





Money



Triangles



Triangle for symmetry



Circle for symmetry



Square for symmetry

Rectangle for symmetry

Dotted paper

•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
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Squared paper

Part 5 Documents

Add your own documents and notes, for example the CAPS document for Foundation Phase Mathematics, here.

Guidelines to strengthen CAPS

The Department of Basic Education published a document indicating how the Curriculum and Assessment Policy Statement (CAPS) should be amended.

For Grades 1 to 3 of the Foundation Phase, the Programme of Assessment has been amended to adjust the **number of assessment tasks**, as shown in the table below:

	Grade 1	Grade 2	Grade 3
Home Language	4	4	4
First Additional Language	4	4	4
Mathematics	4	4	4
Life Skills	4	4	4
Total	16	16	16

Therefore, in Mathematics **four** formal tasks will have to be completed throughout the year for each Grade.

Weighting of content, concepts and skills

The mark allocation table below shows an example of how the weighting of the content areas, concepts and skills that are being assessed are designed in assessment tasks. This example is not prescriptive, as it will differ from school to school. However, you need to refer to your policy documents as well as the GET CAPS Amendments page 22 to guide you.

Every school will have their own cover sheet for their assessment tasks, and the mark allocation table could be reflected on the front cover sheet. This is where the learners' actual marks will be recorded. Again, this will differ from school to school and it is for you to decide how to design the cover sheet.

Note that the assessment tasks must be done at different times and not in one sitting as one big test. It is therefore set up as individual activities according to the content areas. When you plan your programme of assessment you should plan when the tasks and activities will be done within the grade and the phase.

Activity 1	Numbers, operations and relationships	30	
Activity 2	Patterns, functions and algebra	5	
Activity 3	Shape and space	7	
Activity 4	Measurement	6	
Activity 5	Data handling	2	
	Total marks	50	

Example: Mark allocation table

Example: Cover sheet

School logo			WCED logo	
Formal assessm	nent task	Mathematics	Term 1	
Name of schoo	l:		Gr 1	
Name of learne	er:			
Date:		Marks: 50		
Activity 1	Numbers, operatio	ons and relationships	30	
Activity 2	Patterns, functions	s and algebra	5	
Activity 3	Shape and space		7	
Activity 4	Measurement		6	
Activity 5	Data handling		2	
	Total marks		50	
				%

Formal assessment task

Grade 3	Mathematics	Term 1
Name		Class

Activity 1 Numbers, operations and relationships

1. Count the oranges and write the answers.



- a) How many oranges are there? _____
- b) Circle groups of ten. How many groups? _____

 $(\frac{1}{2} \times 2 = 1)$

2. Fill in the missing numbers.



- 3. Write the number names.
 - a) 86 ______ b) 54 ______ $(\frac{1}{2} \times 2 = 1)$

4. Read the numbers on the grid.

235	236	237	238
239	240	241	242

Colour these numbers on the grid: two hundred and thirty-seven; two hundred and forty. (1/2)



Circle the eighteenth car. Tick the twenty-third car. $(\frac{1}{2})$

- 6. True or false: 88 > 99 _____ 67 < 92 _____ (1/2)
- 7. a) Arrange the numbers in order from the smallest to the biggest.
 - 3 35 73 65 75 43
 - b) Arrange the numbers in order from the biggest to the smallest.

27 37 87 78 47 74

 $(\frac{1}{2} \times 2 = 1)$

8. a) 73 = _____ tens + _____ units

b) 81 =_____ units + _____ tens $(\frac{1}{2} \times 2 = 1)$

9. Write the numbers represented on the Dienes blocks.



	+ 10	- 6	× 2	÷ 4
12				
24				

(2)

14. Complete the tables by doubling and halving.

a)	Double:	20	32
	Answer:		

b)	Halve:	40	24
	Answer:		

 $(\frac{1}{2} \times 2 = 1)$

15. Do the sums on the number line.

a) 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 5 + 5 + 5 + 5 + 5 + 5 = _____ b) 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 4 + 4 + 4 + 4 + 4 + 4 + 4 =_____ $(\frac{1}{2} \times 2 = 1)$

- 16. Write the answer. Then write the multiplication sum and answer. 10 + 10 + 10 =_____ (1)
- 17. Count the shoes.



- a) How many shoes are there? _____
- b) Circle the pairs of shoes. How many pairs are there?
- c) Write the division sum. _____ pairs of shoes.
- d) How many shoes remain? _____ shoe. $(\frac{1}{2} \times 4 = 2)$

18. a) Share 24 roses among 6 vases. Make a drawing to show the sum.



- 23. a) What comes before 158? _____
 - b) What comes after 200? _____ $(\frac{1}{2} \times 2 = 1)$
- 24. Calculate the sum by breaking down the numbers.

46 + 37

(1)

- 25. Work out solutions for the word sums.
 - a) There are 88 learners in the playground. When the bell rings they get into 4 groups. How many learners are in each group?



b) There are 76 sweets in a packet. Ahmed takes 45 sweets for himself. How many sweets are left?


c) Thandiwe saved R90 and her brother Thabiso saved R50. How much more must Thabiso save to have the same amount as his sister?



d) Thabo went shopping with a R100 note. He bought carrots at R15, cabbage at R12, butternut at R18, green beans at R20 and potatoes at R25,50. What is the total cost? How much change did he get?



 $(4 \times 1 = 4)$

Total: 30 marks

Gr	ade 3	Mathematic	cs Term 1
Nc	ame		Class
Ac	tivity 2	Patterns, functions	and algebra
1.	a) Count	on. Fill in the missing	numbers.
	128; 13	32; 136;;	·?
	b) Explai	n the rule:	
			$(\frac{1}{2} \times 2 = 1)$
2.	Count bo	ckwards. Fill in the mi	ssing numbers.
	a) 445; 4	40; 435;;	
	b) Explai	n the rule:	
			$(\frac{1}{2} \times 2 = 1)$
3.	Fill in the	e answers and extend t	he pattern.
	10 + 3 = -	113 + 3 =	_ 213 + 3 =
	i		(1)
4.	Describe	the rule for this pattern	1.
	296; 293;	290; 287; 284	
	Rule:		(1.()
_			(1/2)
5.	\bigcirc	7 /	S
			(1/2)

6. a) Complete the pattern in the table.

25	26	27	28	29	30
50					60

b) Describe the rule:

$$(\frac{1}{2} \times 2 = 1)$$

Total: 5 marks

Grade 3	Mathematics	Term 1
Name		Class
Activity 3	Shape and space	
1. How many	sides and edges do these 2-D	shapes have?



 $(\frac{1}{2} \times 6 = 3)$

2. Write the 3-D names for these objects.



 $(\frac{1}{2} \times 4 = 2)$

3. How many sides does this pentagon have?



4. What shape is the shaded part of the cylinder?



5. Draw lines to match the objects with the names.

sphere
cone

(1)

Total: 7 marks

Grade 3	Mather	natics	Term 1
Name			Class
Activity 4	Measurement		
1. a) Write t	he time in words.		
	5	8:30	
b) Write t	he time in digital	form (e.g. 14	:00).



- 2. Themba practised soccer from 3:15 for 1 hour.
 - a) What time did he finish soccer practice?
 - b) Show this time on the clock. Draw the hour and minute hands.



 $(\frac{1}{2} \times 2 = 1)$

 $(\frac{1}{2} \times 4 = 2)$

3. Look at the calendar for January.



a) What public holiday is on 1 January?

b) How many days are there in January? _____ days

c) Which month is the sixth month of the year?

 $(\frac{1}{2} \times 3 = \frac{11}{2})$

4. Number the containers in order from the least to the most. Write the number below each container.



5. Tick the item that weighs more.



6. 25 ml + 5 ml is the same capacity as ______ teaspoons.



(1/2)

Total: 6 marks

Grade 3	Mathematics	Term 1
Name		Class

Activity 5 Data handling

1. The tally chart shows the different sports that Grade 3 learners enjoy.

Soccer	J J J J J J J J J J J J J J J J J J J
Netball	$\int \int \int \int \int$
Cricket	$\int \int \int \int \int \int \int \int \int$
Rugby	
Hockey	\checkmark \checkmark \checkmark
Swimming	J J J J J J J J J J J

- a) Which is the most popular sport among Grade 3 learners?
- b) Which is the least popular sport among Grade 3 learners? $(\frac{1}{2} \times 2 = 1)$
- 2. Complete the bar graph to show the data.



Gr	Grade 3 Mathematics Term 2										
						manc	.3		101111	2	
Na	me								Class		
Ac	tivity	1	Nun	nbers	, ope	ratio	ns an	d rel	ation	ships	,)
1.	Use t	he nu	mber	char	t to a	nswer	the c	questi	ons.		
	401	402	403	404	405	406	407	408	409	410]
	411	412	413	414	415	416	417	418	419	420]
	421	422	423	424	425	426	427	428	429	430]
	431	432	433	434	435	436	437	438	439	440	
	441	442	443	444	445	446	447	448	449	450]
	451	452	453	454	455	456	457	458	459	460	
	461	462	463	464	465	466	467	468	469	470	
	471	472	473	474	475	476	477	478	479	480	
	481	482	483	484	485	486	487	488	489	490	
	491	492	493	494	495	496	497	498	499	500	
	a) Co nu	unt fi mber	rom 4 s	01 to	420.	Write	dow:	n two	even (½	× 2 =	1)
	b) Co	unt fi	com 4	51 to	460.	Write	dow	n two	odd		
	nu	mber	s						(1/2	× 2 =	1)
	c) Co^{2}	unt h	ockw	ards i	n one	s fror	n 500	to 40)0 Cr		nt
	the		mbor			3 1101	11 500		/0. CI	033 0	ui 16)
	d) Co	unt in		s.	- 101	to 12		101174	haaa	(72)
	nu	mber	s.	s non	1421	10 43	0. Co	iouri	nose	(¹ /2)
	e) Co	unt ir	n fives	s from	1 465	to 48	0. Cir	cle th	ose		
	nu	mber	s.							(¹ /2)
	f) Wh	iat nu	ımber	com	es bef	fore 4	90? _		Wł	nat	
	nui	mber	come	s afte	r 462	?				(¹ /2)
	g) Wi	ite th	e nur	nber	name	es.					
	i) 4	84									

	ii) 500			$(\frac{1}{2} \times 2 = 1)$
	h) i) 3 more than 477	' is		
	ii) 5 less than 430	is		$(\frac{1}{2} \times 2 = 1)$
	i) Order the numbers 469 404 431 417	from the small 410	est	to the biggest.
				(1/2)
	j) Order the numbers 444 481 453 409	from the bigge 426	st to) the smallest. (½)
	k) Write the first nun number chart	nber in the sixth	n rov	w on the (½)
	l) Write the tenth nur number chart	mber in the seco	ond	row on the (½)
2.	Break down the num	ber into H T U.		
	419 = +	+	_	(1/2)
3.	Write the value of th	e underlined dig	gits:	4 <u>8</u> 1
	45 <u>1</u> <u>4</u> 91_			$(\frac{1}{2} \times 3 = \frac{11}{2})$
4.	Complete the calculo	ations.		
	a) 15 + 15 = b)	30 – 12 =	c)	25 + 5 - 20 =
	20 + 8 =	25 – 10 =		30 - 18 + 4 =
	d) [10 + 10 + 10 =] e)	8 + 8 + 8 =		
	7 + 7 + 7 + 7 =	12 + 12 + 12 =		
	f) 6 × 4 = g)	27 ÷ 3 =	h)	8 × 4 =
	10 × 3 =	20 ÷ 2 =		30 ÷ 10 =
				$(1 \times 8 = 8)$

- 5. a) $25 \div 4 =$ _____ remainder _____ b) $36 \div 5 =$ _____ remainder _____ ($\frac{1}{2} \times 2 = 1$)
- 6. Share 40 balls equally among 4 groups.
 - a) How many balls in a group? Draw the groups.



- 13. Work out solutions for the word sums.
 - a) I gave half of my 64 coins to my friend. How many coins did I give my friend?



b) There are 198 learners in Grade 1, 156 learners in Grade 2 and 169 learners in Grade 3. How many learners are there in total?



c) Share 48 balls among 6 players. How many balls will each player get?



d) A school has 8 classrooms. Each classroom has 32 desks. How many desks are there in total?



e) Granny baked 80 donuts. She gave 56 donuts to the children in the street. How many donuts are left?



f) Nandi bought fruit at R115, vegetables at R85 and pies and cakes at R39,25. What was the total cost? She paid with a R200 note. What change did she get?

Total cost.	
Change:,	
	$(1 \times 7 = 7)$

Total: 30 marks

Activity 9	Pattorns functions and al	achra
Name		Class
Grade 3	Mathematics	Term 2

Activity 2 Patterns, functions and algebra

- 1. Fill in the missing numbers to complete the number pattern.
 - a) 101 _____ 107 ____ 113 b) 90 100 _____ 130 ____

 $(\frac{1}{2} \times 2 = 1)$

2. Continue the patterns in the tables.

a)	100	90	80	70	60	50	40	30	20	10
	95	85	75							

b)	5	10	15	20	25	30	35	40	45	50
	55	60	65							

 $(\frac{1}{2} \times 2 = 1)$

3. a) Count forwards in ones. Fill in the missing numbers on the number line.

b) Count backwards in twos. Fill in the missing numbers on the number line.



4. Fill in the missing numbers and answers. Then extend the pattern.

$$_ + 10 = _ 12 + 10 = _ 22 + 10 = _ (1/2)$$
5. Continue this pattern four times.
$$\boxed{22} = \underbrace{3}_{M} = \underbrace{3}_{$$

Grade 3	Mathematics	Term 2
Name		Class

Activity 3 Shape and space

1. Draw the front view of the table.





(1)

2. Look at the pictures and draw lines to match the objects with the labels.

Butter	cylinder
	triangular prism
K	rectangular prism
turn	sphere

(2)

3. Write the name of each shape.



4. How many corners (vertices) does a cuboid have?



5. Colour the 2-D shape that has straight sides.



(1/2)

6. Tick the shape that has a line of symmetry and is symmetrical.





7. Look at these shapes. Complete the table.



How many?	Triangular prism	Sphere
Corners/points/vertices		
Faces		
Edges		

 $(\frac{1}{2} \times 2 = 1)$

8. In which direction must the dog walk to get to the water?



Grade 3	Mathematics	Term 2
Name		Class

Activity 4 Measurement

1. What times are shown on the clocks? Write the times in words.



2. Look at the calendar for May 2021.



a) Which public holiday is on 1 May?

(1)

- b) Which month is next? _____
- c) A family plans a holiday from 12 May to 18 May. How many days will their holiday be? _____

 $(\frac{1}{2} \times 3 = \frac{11}{2})$

- 3. Xoliswa went to the shop at 4.30 pm and returned home at 5.00 pm. How long did she take to walk to and from the shop? _____ (1/2)
- 4. What is the length of the pencil?



5. Write the numbers 1 to 3 to order these objects from the shortest to the longest?

6. Circle the mass that is more.



(1/2)

(1/2)

7. Write the numbers 1 to 3 to order these items from the lightest to the heaviest.



8. Read the mass on the scale. What is the mass of the potatoes? _____



(1/2)

9. A baby is 18 months old. How many years is this?

_____ years

(1/2)

Total: 6 marks

Grade 3	Mathematics	Term 2
Name		Class

Activity 5 Data handling

This tally table gives you the data of the kinds of beverage that Grade 3 learners at your school like.

Popular beverages	Number of learners
Fizzy drinks	J J J J J J J J J J J J J J J J J J
Milk	$\int \int $
Water	J J J J J J J J J J J J J J J J J
Juice	J J J J J J J J J J J J J J J J J J J
Hot chocolate	$\int \int \int \int \int$
Coffee	$\mathcal{I} \mathcal{I} \mathcal{I} \mathcal{I} \mathcal{I} \mathcal{I} \mathcal{I}$
Теа	$\int \int \int \int \int$

1. Show this information in the pictograph.



- 2. Which beverage is the most popular among learners?
 - (1/2)

3. Which beverage is the least popular?

(1/2)

Total: 2 marks

Grade 3	Mathematics	Term 3
Name		Class

Activity 1 Numbers, operations and relationships

1. Use the number chart to answer the questions.

651	652	653	654	655	656	657	658	659	660
661	662	663	664	665	666	667	668	669	670
671	672	673	674	675	676	677	678	679	680
681	682	683	684	685	686	687	688	689	690
691	692	693	694	695	696	697	698	699	700

- a) First row: Count in twos. Colour the numbers you have counted.
- b) Second row: Count in threes. Circle the numbers you have counted.
- c) Count in tens from 660. Cross out the numbers you have counted.
- d) Count in fives from 680. Tick the numbers you have counted.
- e) Last row: Write one even number and one odd number. _____ $(\frac{1}{2} \times 5 = 2\frac{1}{2})$
- 2. Write the number names.
 - a) 651 _____ b) 700

 $(\frac{1}{2} \times 2 = 1)$

3. Order the numbers from the smallest to the biggest.

881 972 1 000 705 938

(1/2)



12. Complete the table. Double and halve the numbers.

Double	Number	Halve	
	610		
	800		
	423		$(\frac{1}{2} \times 6 = 3)$

13. Complete the table by filling in the missing numbers.

Before	Between	After	
	812		
424		990	
	999	1 000	$(\frac{1}{2} \times 4 = 2)$

14. Calculate by breaking down the numbers.



$$(1 \times 2 = 2)$$

15. Calculate.



16. Write the name of the shaded fraction.



17. a) Colour in four eighths.



b) Four eighths is the same as $(\frac{1}{2} \times 2 = 1)$

Order the fractions from the smallest to the biggest.
 half third quarter

(1/2)

- 19. Work out solutions to the word word sums.
 - a) Mia collected 610 newspapers for recycling. Zia collected 248 newspapers. How many newspapers were collected altogether?



b) Sethu had 90 marbles when he started the game. He lost 27 marbles. How many marbles does he have left?



c) My mother bought 18 metres of cloth. She used it to make 3 curtain drops. How many metres did each curtain drop measure and how many metres remain?



d) Share 48 balls among 4 players. How many balls will each player get?



e) Brenda goes to the shop. She buys a skipping rope at R20, a ball at R10,20, a hoop at R7,00 and a bean bag at R15. What is the total cost? She pays with a R50 note. What change does she get?



f) You have 16 sweets. You give ¼ of your sweets away to your friend. How many sweets do you have left? What fraction of the sweets is left?

SW	eets left
frac	tion left

Total: 30 marks

Term 3
Class
ra
4 $(\frac{1}{2} \times 2 = 1)$
2.
$(\frac{1}{2} \times 2 = 1)$
(/-//-///
$(\frac{1}{2} \times 2 = 1)$
_

				(1/2
Create	your own po	ıttern. Re	epeat it f	our times

_

____(1) Total: 5 marks

Grade 3	Mathematics	Term 3
Name		Class

Activity 3 Shape and space

1. Look at the compass showing the directions North, East, South and West.



- a) What is the position of the bird? _____
- b) What is the position of the surfer? _____

$$(\frac{1}{2} \times 2 = 1)$$

2. Write the coordinates of the cat and the dog.

	А	В	С
1			R
2			
3			



Grade 3	Mathematics	Term 3
Name		Class

Activity 4 Measurement

1. Draw an analogue clock to show the time.



Half past one

Quarter past eleven

(1/2)

2. Draw a digital clock to show the time.



(1/2)

- 3. The twelfth month of the year is _____. (1/2)
- 4. How many seasons do we have in a year? $(\frac{1}{2})$
- 5. A baby is 24 months old. How many years is this?

(1/2) 6. 60 months = _____ years (1/2)

7. Look at the scales.



Order the mass in ascending order.

- (1/2)
- 8. How many millilitres in a cup? _____ ml (1/2)
- 9. How many millilitres in a teaspoon? _____ ml (1/2)
- 10. Tick the capacity that is the most.



(1/2)

11. Use a piece of string to measure the distance around the outside of the rectangle. Calculate the measurement and write it down.



Grade 3	Mathematics	Term 3
Name		Class

Activity 5 Data handling

Look at the data in the tally table about the types of car that Grade 3 learners like.

Type of car	Number of learners
Toyota	
Ford	
Polo	
Mercedes	
BMW	J J J J J J J J J J J J J J J J J J J

The bar graph represents the data in the tally table.

1. Colour the bars in different colours.



2. Which two types of car are the most popular?

(1)

3. Which type of car is the least popular?

(1/2)

Total: 2 marks
Grade 3	Mathematics	Term 4
Name		_ Class

Activity 1 Numbers, operations and relationships



Count the apples in tens. Write the number name.

(1/2)



Count the pineapples in fives. Write the number

symbol. _____

(1/2)

3. Read and count. Complete the questions.

951	952	953	954	955	956	957	958	959	960
961	962	963	964	965	966	967	968	969	970
971	972	973	974	975	976	977	978	979	980
981	982	983	984	985	986	987	988	989	990
991	992	993	994	995	996	997	998	999	1000

a) Count in tens from 960. Write the numbers.

(1/2)

- b) What is more? Circle the number: 975 or 957. $(\frac{1}{2})$
- c) What is less? Circle the number: 996 or 969. $(\frac{1}{2})$
- d) Write down the odd numbers in the first row in the table.

(1/2)

	e) Count backwards in twos from 1 000 to 9	991. Colour
	the numbers that you have counted.	(1/2)
	f) 985 is before 970 is after	(1)
4.	Arrange the numbers in descending order.	
	880; 991; 628; 1 000	
		(1/2)
5.	Arrange the numbers in ascending order.	
	995; 810; 737; 999	
		(1/2)
6.	a) 10 more than 990 is	
	b) 3 less than 520 is	
	c) 4 more than 812 is	
	d) 8 less than 1 000 is	$(\frac{1}{2} \times 4 = 2)$
7.	True or false?	
	a) 942 > 924	
	b) 951 < 915	$(\frac{1}{2} \times 2 = 1)$
8.	What is the third number after 997?	(1/2)
9.	What is half of 120?	(1/2)
10	. What number is between 980 and 982? _	(1/2)
11	. Write the value of the underlined digits.	
	a) 9 <u>5</u> 3	
	b) 59 <u>3</u>	$(\frac{1}{2} \times 2 = 1)$

12. Break down the number into HTU. Draw an abacus to show your answer.



(1)

13. Calculate by breaking down the numbers.



17. Complete the table.

Double	Number	Halve
	50	
	17	
	86	
	480	

(2)

18. Complete the table. Write your answers in the last column.

Number	×	÷	+	_	Answer
10	2	5	7	15	
8	5	10	36	12	
30	2	3	45	50	

(3)

19. Do the sums on the number lines.



20. Round off the numbers to the nearest 10.

- a) 783 _____ b) 829 $(\frac{1}{2} \times 2 = 1)$
- 21. Work out the solutions for the word sums.
 - a) A delivery van has 685 loaves of bread in the van and delivers 235 loaves to the supermarket. How many loaves of bread are still in the van?



b) A farmer has 361 chickens, 297 pigs, 185 cows and 12 ostriches. How many animals does he have on the farm?



c) At the shop, pencils are selling at R20, books at R25, pencil bags at R30 and crayons at R28,50. If you buy 2 books, a pencil bag and crayons, what is the total cost? What is your change if you pay with a R100 note?



d) Mom needs 250 g of flour to bake one cake. How much flour will she need to bake 4 cakes?



e) There are 18 desks in the classroom. If two learners sit at a desk, how many learners are there in the class?



f) Share 68 flowers among 6 vases. How many flowers are in each vase and how many flowers remain?



 $(1 \times 6 = 6)$

Total: 30 marks

Gı	ade 3		Ма	ithemat	tics	Ter	rm 4
No	ame					_ Clo	ass
Ac	ctivity 2	Pat	terns, fi	unction	s and a	lgebra	
1.	Continu	ie the n	umber j	pattern	S.		
	a)		998	97 _			
	994						
	b) 303	403				_ 703	
				1	003	(1/2	$2 \times 2 = 1$
2.	Comple	te the n	umber	pattern	s.		
	a) 125]	175 _			
	250						
	b) 1 000)		996			
							$(\frac{1}{2} \times 2 = 1)$
3.	Comple	te the p	oattern i	n the to	able. De	scribe tł	ne pattern.
	15	18	21	24	27	30	
	5	6]
	Rule:						(1)
4.	Fill in th	ne answ	vers. The	en exter	nd the p	attern t	wo times.
	128 + 30	O =		138 +	30 =		
	148 + 30	O =	1	58 + 30	=		
							(1)
							(1)

5. Continue the pattern two times.



(1/2)

Total: 5 marks



6. Draw the top view of what you see.



(1/2)

7. Look at the grid. What is the position of the tree?

3			
2			
1		10 H	
	A	В	С

The tree is at _____.

(1/2)

8. Circle the corners (vertices) of the cuboid. How many corners does it have?



_ corners (vertices) (½)

9. Name all the shapes you can identify.



Total: 7 marks

(1/2)





- a) Which vegetables weigh more, the potatoes or the carrots?
- b) How much more do they weigh? _____

 $(\frac{1}{2} \times 2 = 1)$

5. Arrange the containers in order from the least to the most.



(1) Total: 6 marks

Grade 3	Mathematics	Term 4
Name		Class

Activity 5 Data handling

Look at the weather table. It shows data about the weather for one week in June.

Cape Town	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Weather	sun	sun/cloud	sun/cloud	cloud/rain	sun	sun/cloud	sun/cloud
Temperature	22	19	19	18	18	18	18

1. Complete the pictograph to show this data.

er		Mon	Tues	Wed	Thurs	Fri	Sat	Sun		
and weath	Ц.	22								
mperature										
Ter										

Days of the week

(1)

2. There were _____ clear, sunny days during the week. It was clear and sunny on _____ and

(1/2)

3. It rained on ______. What was the total temperature for the last four days when the temperatures were the same? _____. (1/2)

Total: 2 marks



Study & Master Mathematics has been specially developed by an experienced author team for the Curriculum and Assessment Policy Statement (CAPS) and the CAPS Amendments of 2019. This UPDATED and easy-to-use course not only helps learners to master essential content and skills in the subject, but gives them the best possible foundation on which to build their Mathematics knowledge.

Study & Master Mathematics Grade 3 is made up of these core components:

The comprehensive Learner's Book provides:

- graded activities that develop learners' skills and understanding in each of the content areas specified by the CAPS document
- examples and activities based on learners' own experiences
- updated and amended Assessment Tasks at the back of the book.

The substantial Workbook provides:

- ample worksheets to consolidate the activities dealt with in the Learner's Book
- activities to enhance fine motor skills.

The innovative Teacher's Guide includes:

- additional classroom activities to introduce and consolidate work done in the Learner's Book and Workbook
- teaching tips and support for all the activities in the learner material
- guidance on whole class activities, small group teaching and independent work
- · photocopiable record sheets and templates
- photocopiable Formal Assessment Tasks for each term.



