

Mathematics Level 4

Contents

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Aboriginal and Torres Strait Islander content has been excluded as accuracy cannot be guaranteed, and it is better to be respectful than cover the entire curriculum inaccurately.

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Contents

This book is the **Mathematics Level 4** student workbook. It is written for **Level 4** of the Victorian Curriculum F–10 Version 2.0 (VC2), Mathematics — Year 4 in Victorian schools. **One year level, not a band.** Every content description in this book is a Level 4 content description; nothing here is Level 3 revision and nothing here is Level 5 ahead-of-time. The series is ten booklets:

- **Chapter 1 — Number: whole numbers, the four operations and algorithms** — Maths4_Chapter01 — subtopics 1A–1E, and the Chapter 1 test (54 pp)
- **Chapter 2 — Number: fractions, decimals, money and modelling** — Maths4_Chapter02 — subtopics 2A–2E, and the Chapter 2 test (59 pp)
- **Chapter 3 — Algebra: number facts and unknown values** — Maths4_Chapter03 — subtopics 3A and 3B, and the Chapter 3 test (23 pp)
- **Chapter 4 — Measurement** — Maths4_Chapter04 — subtopics 4A–4D, and the Chapter 4 test (68 pp)
- **Chapter 5 — Space** — Maths4_Chapter05 — subtopics 5A–5D, and the Chapter 5 test (57 pp)
- **Chapter 6 — Statistics** — Maths4_Chapter06 — subtopics 6A–6C, and the Chapter 6 test (41 pp)
- **Chapter 7 — Probability** — Maths4_Chapter07 — subtopics 7A and 7B, and the Chapter 7 test (28 pp)
- **Chapter 8 — Practical and investigation tasks** — Maths4_Chapter08_Tasks — tasks K1–K5 with marking guides, for the six content descriptions a written test cannot evidence (32 pp)
- **Chapter 9 — End-of-year review** — Maths4_Chapter09_Review — the cumulative review drawn from all six strands, with its marking guide (20 pp)
- **Chapter 0 — Contents** — Maths4_Chapter00_Contents — this booklet: how to use the book, what it covers, teacher notes and safety notes (00 pp)

Series total: ten booklets ≈ 382 pages. The built booklets — Maths4_Chapter00_Contents, Maths4_Chapter01 to Maths4_Chapter07, Maths4_Chapter08_Tasks and Maths4_Chapter09_Review — are in S:\Files\VC2Maths\Textbook4\.

How to use this book

The chapters follow the strands. Chapters run Number → Algebra → Measurement → Space → Statistics → Probability. Number carries 10 of the 25 content descriptions — two-fifths of the book — so it is split across Chapters 1 and 2: whole numbers, the four operations and algorithms first, then fractions, decimals, money and modelling. Both chapters stay wholly inside the Number strand: this is a sizing split, not a departure from the strand order.

Any teaching order works, with one stated exception. Chapters 4–7 are independent of each other and of Chapters 1–3. The one link to plan around: subtopic 3A (multiplication facts to 10×10) is the fluency that 1B and 1C consume. A teacher may run 3A before Chapter 1, and the book is written so that works — 1B and 1C build the facts they need from arrays and known facts rather than assuming 3A has already happened.

One content description per subtopic. Each of the 25 subtopics owns exactly one VC2 content description, and its teaching sequence is built to deliver that content description. VCAA’s elaborations — the examples it suggests for what a content description might look like — are carried in each subtopic’s code line for linkage and coverage, not as a checklist to work through.

The shape of every subtopic. Each subtopic opens with its VC2 code and the elaboration ids it draws on, quoted from the curriculum, and a **What you need to know** section that recalls the Level 3 work it builds on. Then come the worked examples — first step by step, then on your own — the practice questions with help and then on your own, and a short applied or reasoning item in a real Victorian context. Answers and worked answers close every subtopic, so a student can check their own work. Several subtopics also carry a hands-on investigation — making a scaled instrument, tiling a shape, testing angles, building a model, tracing symmetry, conducting a survey, running a chance experiment, building and running an algorithm — and that hands-on work is what the tasks in Chapter 8 assess.

A subtopic is not one lesson. Each of the 25 subtopics is several lessons of work. Six of them — 1C, 2B, 2C, 4A, 4B and 7A — carry a double volume of examples and questions because their content descriptions are the largest at this level.

The book is written for a Year 4 reader. Sentences are short. Every new mathematics word is named and taught where it first appears, and the general vocabulary is held at or below Year 4 reading level, so the difficulty lands on the mathematics, not on the reading.

The notation in this book. Numbers above 9999 use a space as the group separator: 10 000, 425 000, never a comma. Multiplication is $\times$, division is $\div$, and subtraction uses a proper minus: $12 - 5 = 7$. Fractions are set as fractions, not $1/2$. Money is \$1.85, 50c, \$2. Times are 9:45 am, 3:20 pm. Temperature is 28.5°C . Clocks and kitchen scales in this book are **analog** — that is the curriculum’s own spelling, kept deliberately.

Everything real is really real. Every price, timetable, temperature record, coin specification and pack size in the book is real, named and carries a source line with a retrieval date, so a reader can see where the numbers come from. Where a subtopic uses a digital tool — a spreadsheet, a calculator, dynamic geometry software — the tool is real and named.

Checks, tasks and the review are untimed. Every instrument in this book is a classroom check, not an examination. There is no time to beat, materials are permitted wherever the curriculum assumes them, and the guidance durations are for a teacher planning a lesson, not a limit. See the teacher notes below.

Which book is which. This is the single-level Year 4 book. The Levels 3–4 band book is a separate product that carries the same Level 4 content for composite Year 3/4 classes; a straight Year 4 class uses this one, and a composite 3/4 class uses the band one.

What this book covers

The table below is the coverage register for this book: all 25 content descriptions of VC2 Mathematics Level 4, each against the subtopic that owns it, with its elaboration ids and the count of banked multiple-choice questions already keyed to it. Every code appears exactly once as an owner. There are no unowned codes and no code is deferred to another book. The series checks itself against this map.

#	CD code	Strand	Owner	Subtopic title	Elaboration ids	MCQs
1	VC2M4A01	Algebra	3B	Finding unknown values in numerical equations	VC2M4A01 .E01, .E02, .E03	48
2	VC2M4A02	Algebra	3A	Multiplication facts to 10×10 and the related division facts	VC2M4A02 .E01, .E02, .E03, .E04	6
3	VC2M4M01	Measurement	4A	Scaled and digital instruments: length, mass, capacity, duration and temperature	VC2M4M01 .E01, .E02, .E03, .E04, .E05, .E06, .E07	48
4	VC2M4M02	Measurement	4B	Perimeter	VC2M4M02	96

#	CD code	Strand	Owner	Subtopic title	Elaboration ids	MCQs
		t		and area with formal and informal units	.E01, .E02, .E03, .E04, .E05	
5	VC2M4M03	Measurement	4C	Duration, am and pm, and converting between units of time	VC2M4M03 .E01, .E02, .E03	48
6	VC2M4M04	Measurement	4D	Naming and comparing angles: acute, obtuse, right, straight, reflex, revolution	VC2M4M04 .E01, .E02, .E03, .E04	48
7	VC2M4N01	Number	2B	Tenths and hundredths: place value and decimal notation	VC2M4N01 .E01, .E02, .E03, .E04, .E05, .E06	96
8	VC2M4N02	Number	1A	Number sequences: multiples of 3, 4, 6, 7, 8 and 9	VC2M4N02 .E01	48
9	VC2M4N03	Number	2C	Equivalent fractions and the connection to decimals	VC2M4N03 .E01, .E02, .E03, .E04, .E05	96
10	VC2M4N04	Number	2A	Counting by halves, quarters and thirds; mixed numerals on a number line	VC2M4N04 .E01, .E02, .E03, .E04	48
11	VC2M4N05	Number	1B	Multiplying and dividing by multiples and powers of 10	VC2M4N05 .E01, .E02, .E03	48
12	VC2M4N06	Number	1C	Efficient mental and written strategies for	VC2M4N06 .E01, .E02, .E03, .E04, .E05, .	96

#	CD code	Strand	Owner	Subtopic title	Elaboration ids	MCQs
				the four operations	E06	
13	VC2M4N07	Number	1D	Rounding and estimating to check that an answer is reasonable	VC2M4N07 .E01, .E02, .E03	48
14	VC2M4N08	Number	2D	Purchases and change to the nearest 5 cents	VC2M4N08 .E01, .E02	48
15	VC2M4N09	Number	2E	Modelling practical problems, including financial contexts	VC2M4N09 .E01, .E02, .E03, .E04, .E05	48
16	VC2M4N10	Number	1E	Algorithms that generate sets of numbers	VC2M4N10 .E01, .E02, .E03, .E04	48
17	VC2M4P01	Probability	7A	Ordering outcomes by likelihood; independent and dependent events	VC2M4P01 .E01, .E02, .E03, .E04, .E05, .E06	96
18	VC2M4P02	Probability	7B	Repeated chance experiments and the variation in results	VC2M4P02 .E01, .E02, .E03, .E04	48
19	VC2M4SP01	Space	5A	Geometric properties of two-dimensional shapes and three-dimensional objects	VC2M4SP0 1.E01, .E02	48
20	VC2M4SP02	Space	5B	Composite shapes and objects in the environment	VC2M4SP0 2.E01, .E02, .E03, .E04	48
21	VC2M4SP03	Space	5C	Grid reference	VC2M4SP0 3.E01, .E02	48

#	CD code	Strand	Owner	Subtopic title	Elaboration ids	MCQs
				systems: locating positions and describing pathways	02, .E03, .E04	
22	VC2M4SP04	Space	5D	Line and rotational symmetry	VC2M4SP04.E01, .E02, .E03, .E04	48
23	VC2M4ST01	Statistics	6A	Acquiring data and building many-to-one displays	VC2M4ST01.E01, .E02, .E03, .E04, .E05	48
24	VC2M4ST02	Statistics	6B	Judging a display: the shape of a distribution and variation in the data	VC2M4ST02.E01, .E02, .E03	48
25	VC2M4ST03	Statistics	6C	Conducting a statistical investigation with surveys and digital tools	VC2M4ST03.E01, .E02, .E03	48
				Totals	100 elaboration ids	1 398

Notes on this table:

- The **Elaboration ids** column shows suffixes after the first, for width; the full id is the code plus the suffix — row 3 is VC2M4M01.E01 ... VC2M4M01.E07. The suffix is positional in VCAA's order and is never renumbered.
- **Elaborations are illustrations, not requirements.** The content description is the expectation; an elaboration is one way VCAA suggests it might look. The coverage check asks whether each content description was taught — an elaboration that is not used is not a gap.
- **Five elaborations are reserved and are not taught in this book.** They are the ones that invoke Aboriginal and Torres Strait Islander content: VC2M4M01.E07, VC2M4M02.E05, VC2M4M03.E03, VC2M4SP04.E04 and VC2M4ST01.E05. They are reserved under the notice on the first page of every booklet in this series. Because elaborations are illustrations, no content description is left without a teaching sequence — every code is still delivered in full by its subtopic, and each of these five content descriptions keeps its other elaborations.
- **The counts close.** 25 codes, 25 owners — every code is owned exactly once. 100 elaboration ids, each carried exactly once. 1 398 banked questions keyed to these codes. Register check run against the authority file 2026-08-07: 25 codes listed, 25 codes in the file, 0 duplicated owners, 0 unowned codes, 0 codes left to another book, 100 elaboration ids listed and 100 in the file, and the MCQ column sums to 1 398, matching the file.

- **VC2M4A02 carries only 6 banked items.** Twenty-four of the 25 content descriptions carry 48 or 96 banked multiple-choice items; multiplication facts to 10×10 carries 6. That is the shape of the bank, not a data error. Subtopic 3A's assessment items are therefore authored, not drawn — see the teacher notes below.
- **Codes that do not exist.** Level 4 Algebra ends at A02, Number at N10, Measurement at M04, Space at SP04, Statistics at ST03 and Probability at P02. There is no VC2M4A03, no VC2M4N11, no VC2M4M05, no VC2M4SP05, no VC2M4ST04, no VC2M4P03 — the numbering stops because the curriculum stops, not because anything is missing.

What this book does not cover. This book covers Level 4 only. What Level 3 taught is assumed, not re-taught: odd and even numbers; reading, writing and ordering numbers beyond 10 000; unit fractions $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$ and $\frac{1}{10}$ and their multiples; adding and subtracting two- and three-digit numbers by partitioning; multiplying and dividing one- and two-digit numbers; estimating a quantity; dollars and cents; addition and subtraction facts to 20 and the inverse relationship; the 3, 4, 5 and 10 times tables; which metric unit measures what and how to read instruments with labelled markings; days, hours, minutes and seconds and reading a clock to the nearest minute; angles as measures of turn compared with a right angle; two-dimensional representations of familiar environments; and the language of chance — likely, unlikely, certain, impossible. Everything past the Level 4 line stays out: decimals beyond hundredths, adding or subtracting fractions, comparing and ordering fractions with related denominators, percentages, division with a remainder, factors and divisibility tests, algorithms with branching and repetition, unknowns in multiplication and division equations, perimeter and area as practical metric problems, 12-hour to 24-hour conversion, angles measured in degrees, nets of three-dimensional objects, grid coordinates naming a point, named transformations, line graphs over time, “equally likely” as a technical comparison, and probabilities written as fractions are all Level 5 content; metric unit conversion, the formula for the area of a rectangle, the Cartesian plane, continuous variables and numerical probabilities arrive at Level 6, and pronumerals and ratios at Level 7. Towards Foundation Levels A–D are a separate product for students with disability working below Foundation Level, and VCE content is nowhere in this book.

Teacher notes

Assessment in this book is a set of **classroom checks**: untimed in principle, with a guidance duration for a teacher planning a lesson, and materials — counters, rulers, tape measures, measuring jugs, kitchen scales, thermometers, clocks, grid paper, string, coins, dice, spinners and cards — permitted wherever the content description assumes them. **Nothing here is an examination**, and nothing is formatted as one.

Administration — the standing rules. These apply to every instrument in the book:

- Completion is **untimed**. The guidance durations in the tables below are for planning a lesson, not a limit to beat.
- **Materials are permitted** wherever the content description assumes them, as listed above.
- **Calculator status is set by the content description, not by preference.** Subtopics **1B** and **3A** are **calculator-free** — their content descriptions say “without a calculator”, and that holds for their practice and their test items. Subtopic **2D** **must be attempted both with and without digital tools** — its content description says “with and without digital tools”, so its items appear in both forms. In 1C, 2E, 6A and 6C digital tools are named by the curriculum and are permitted, not mandatory; in 1E and 5D the same holds — every assessed item is answerable without a digital tool. Everywhere else the curriculum is silent, and no calculator rule is added.
- **A marking guide ships with every instrument.** Every rubric is written in the language of that content description's achievement-standard extract from the authority file, so a teacher's judgement maps to VCAA's wording without translation. One known mismatch is kept, not fixed: the achievement-standard extract for VC2M4M01 names length, mass, capacity and temperature, while the content description itself also requires **durations**. Duration is taught and assessed in 4A and in task K1; the duration items are scored against the content description, and the reporting statement uses VCAA's wording as written.

The chapter tests. One test per chapter, seven tests in all. Items are predominantly short-answer with diagrams and materials; multiple choice is used sparingly — no more than a quarter of any test, because at this level it hides method.

Each test scores only the content descriptions its own chapter owns, and every owned content description contributes at least one separately scored item, so a coverage audit can read delivery off the marking guide.

Test	Chapter	CDs assessed	Marks	Guidance duration
T1	1 — Number: whole numbers, the four operations and algorithms	5	25	30 min
T2	2 — Number: fractions, decimals, money and modelling	5	25	30 min
T3	3 — Algebra: number facts and unknown values	2	12	20 min
T4	4 — Measurement	4	20	25 min
T5	5 — Space	4	20	25 min
T6	6 — Statistics	3	15	25 min
T7	7 — Probability	2	12	20 min
	Chapter tests	25	129	

The practical and investigation tasks. Six content descriptions cannot be evidenced by a written test item alone, because the verb in the content description requires the student to *do* something — measure with an instrument, tile a shape, run an investigation, carry out repeated trials, execute an algorithm. They are still owned by their subtopics in the coverage map above; the tasks below are how the book assesses them.

Task	Assesses	Owner subtopic	Marks
K1 — Measuring with scaled instruments (length, mass, capacity, duration, temperature)	VC2M4M01	4A	15
K2 — Perimeter by string and side lengths; area by tiling with part- units	VC2M4M02	4B	10
K3 — Statistical investigation: survey, digital recording, display and report	VC2M4ST01, VC2M4ST03	6A, 6C	15
K4 — Repeated chance experiment with a named random generator	VC2M4P02	7B	10
K5 — Build and run an algorithm (flow chart, then calculator or spreadsheet)	VC2M4N10	1E	10
Tasks			60

Each task ships with a marking guide written as **observable student actions**, not adjectives — “reads the jug at eye level and records to the nearest marked graduation”, not “measures carefully”. K5 is scored on the flow chart and the generated sequence, and must be completable without a spreadsheet, with the digital route offered as an alternative.

Coverage of assessment. All 25 content descriptions are assessed at least once. The six content descriptions in the task table are assessed by a task **and additionally** appear in written form in T1, T4, T6 or T7 — interpreting a printed scale reading, reading a completed frequency table, or following a drawn flow chart — so a student absent for a practical is not left with an unassessed content description.

The end-of-year review — 40 marks. Run once, after Chapter 7. The review draws on all six strands and is cumulative: no new content, and no content description is assessed there that was not already assessed in its chapter test. It exists so a Year 4 teacher can check retention before students move to Level 5, and so a Year 5 teacher receiving the class can see where the gaps are. It is not timed as an exam; run it across two sessions if that suits the class.

Total assessed marks: 129 (chapter tests) + 60 (tasks) + 40 (end-of-year review) = 229.

The question bank. The bank holds 1 398 multiple-choice items keyed to the 25 codes in the coverage map. They are a practice resource for the subtopic exercise sets — they are not the assessment in this book, and no test is more than a quarter multiple choice. The one exception to drawing from the bank is 3A: VC2M4A02 carries 6 banked items, so 3A’s assessment items are authored to the same level discipline as the rest of the book.

Safety notes

The practical work in this book uses everyday classroom materials — rulers, tape measures, measuring jugs, kitchen scales, thermometers, clocks and timers, grid paper, string, paper tiles, tracing paper, connecting cubes, coins, dice, spinners, cards and counters — and every investigation names its materials at the point of use, on the same page as the task. Standing rules, in every part of the book:

1. **No flame, no heating, no chemicals, no blades.** The only cutting in the book is scissors for paper strips and paper tiles in the Chapter 4 investigation work, used under supervision. The temperature work reads everyday temperatures; nothing is heated.
2. **Water stays small and local.** The capacity work in 4A and task K1 uses small amounts of water. Spills are wiped up at once — a wet floor is a slip hazard — and water used for measuring is never drunk.
3. **Fragile instruments are carried, not swung.** Glass thermometers and measuring jugs are handled gently, passed hand to hand, and returned to the teacher at the end of the task. Breakage is reported at once.
4. **Small items stay on the desk.** Counters, dice, coins and cards are not food; they are collected and counted back at the end of the lesson. Students wash their hands after handling money.
5. **Moving around stays calm.** The 4D angle walk and the 5B model work clear floor space first, and students walk, not run. Any mapping or measuring done outside the classroom stays on school grounds, with the class in sight of the teacher.
6. **Food is checked first.** If a lesson uses food items as counting or survey materials, the teacher checks allergies before the items are handed out.
7. **Chance equipment stays with its task.** The dice, spinners, coins and cards in Chapter 7 and task K4 are equipment for recording results, not games; the teacher collects them when the trials are done.
8. **Screens follow the school’s rules.** The spreadsheet, calculator, dynamic geometry and online-dataset work in 1E, 2D, 5D, 6A and 6C runs on school-approved devices and accounts, and survey results are recorded as counts only — never as names.