

Mathematics Level 6

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.

Significant effort has been made to ensure this content is legal. Please send any areas of concern to admin@vwx.au with appropriate document/legal references so errors can be verified and changes be made.

Contents

This book is the **Mathematics Level 6** student workbook. It is written for **Level 6** of the Victorian Curriculum F–10 Version 2.0 (VC2), Mathematics — Year 6 in Victorian schools. **One year level, not a band.** Every content description in this book is a Level 6 content description; nothing here is Level 5 revision and nothing here is Level 7 ahead-of-time. The series is twelve booklets:

- **Chapter 1 — Integers and number properties** — Maths6_Chapter01 — subtopics 1A and 1B, and the Chapter 1 test (35 pp)
- **Chapter 2 — Fractions, decimals and percentages** — Maths6_Chapter02 — subtopics 2A–2E, and the Chapter 2 test (66 pp)
- **Chapter 3 — Estimation and mathematical modelling** — Maths6_Chapter03 — subtopics 3A and 3B, and the Chapter 3 test (34 pp)
- **Chapter 4 — Patterns, equations and algorithms** — Maths6_Chapter04 — subtopics 4A–4C, and the Chapter 4 test (46 pp)
- **Chapter 5 — Measurement** — Maths6_Chapter05 — subtopics 5A–5D, and the Chapter 5 test (57 pp)
- **Chapter 6 — Space** — Maths6_Chapter06 — subtopics 6A–6C, and the Chapter 6 test (45 pp)
- **Chapter 7 — Statistics** — Maths6_Chapter07 — subtopics 7A–7C, and the Chapter 7 test (55 pp)
- **Chapter 8 — Probability** — Maths6_Chapter08 — subtopics 8A and 8B, and the Chapter 8 test (36 pp)
- **Chapter 9 — Investigation and modelling tasks** — Maths6_Chapter09_Tasks — tasks I1 and I2 with rubrics, for the conduct and justify halves of the two content descriptions a written test cannot evidence (17 pp)
- **Chapter 10 — Review 1 — Number and Algebra** — Maths6_Chapter10_Review1 — the cumulative review of Chapters 1–4, all 12 Number and Algebra content descriptions, with fully worked solutions (8 pp)
- **Chapter 11 — Review 2 — Measurement, Space, Statistics, Probability** — Maths6_Chapter11_Review2 — the cumulative review of Chapters 5–8, all 12 remaining content descriptions, with fully worked solutions (10 pp)
- **Chapter 0 — Contents** — Maths6_Chapter00_Contents — this booklet: how to use the book, what it covers, teacher notes and safety notes (00 pp)

Series total: twelve booklets ≈ 409 pages. The built booklets — Maths6_Chapter00_Contents, Maths6_Chapter01 to Maths6_Chapter08, Maths6_Chapter09_Tasks, Maths6_Chapter10_Review1 and Maths6_Chapter11_Review2 — are in S:
\\Files\\VC2Maths\\Textbook6\\.

How to use this book

The chapters follow the strands. Six strands, eight chapters, in the order Number → Algebra → Measurement → Space → Statistics → Probability. Number carries 9 of the 24 content descriptions, so it is split thematically across three chapters: Chapter 1 is integers and number properties, Chapter 2 is fractions, decimals and percentages, and Chapter 3 is estimation and mathematical modelling — nine Number subtopics in one chapter would produce a booklet no Year 6 class works through and a chapter test too long to sit. Measurement's four content descriptions stay in one chapter: four subtopics is a workable booklet and a 20-mark test. No chapter mixes strands.

Book order is a teaching order. Read front to back, every dependency is satisfied before it is needed. If you resequence, these are the six links to plan around: **1A before 2A and 2B** — factors and primes are how a lowest common denominator is found; **2D before 5A** — metric conversion is multiplication and division by powers of 10; **2A, 2B and 2E before 8A** — probabilities are written as fractions, decimals and percentages; **1B before 6B** — 1B puts integers on the plane, 6B puts ordered pairs in all four quadrants; **7A before 7C** — the investigation in 7C reports using the displays and measures 7A teaches; and **3A alongside 2C** — both carry an estimation clause, and the two are written to be consistent, not duplicated.

One content description per subtopic, exactly. Each of the 24 subtopics owns exactly one VC2 content description, quoted verbatim at the top of the subtopic, 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 for linkage and coverage only; they are illustrations, not a checklist to work through in order.

The shape of every subtopic. Each subtopic opens with its content description quoted from the curriculum. Then comes the theory — with a short recap of the Year 5 work it builds on where the subtopic needs one, and a **Words for this subtopic** table that gathers every new term with what it means here. Then the worked examples — first *with help*, then *on your own* — and the practice questions, again *with help* first and *on your own* second, plus **Maths in real life** and **Choosing your strategy** sets in most subtopics. Answers and fully worked solutions close every subtopic, so a student can check their own work, and most subtopics end with **What comes next**, a short note pointing to where the idea goes.

A subtopic is not one lesson. Each of the 24 subtopics is several lessons of work. Fourteen of them — 1A, 1B, 2E, 3B, 4A, 4C, 5A, 5C, 5D, 6C, 7A, 7C, 8A and 8B — carry a double allocation of theory, worked examples and practice, because their content descriptions name three or more distinct techniques or a full modelling or investigation cycle.

Calculator and digital-tool status is set by the content description, not by preference. Subtopic **2D** is **calculator-free throughout** — its content description says “without a calculator”, and that holds for its practice and its test items. In **7A and 8B a digital tool is compulsory**: a spreadsheet or graphing tool in 7A, a simulation tool in 8B; a student who only ever works those subtopics by hand has not completed them. Subtopic **2E** is **taught and assessed both with and without digital tools**. In 2C, 3B and 6C digital tools are permitted where appropriate; in 4C and 7C they are named only in elaborations and are treated the same way. Everywhere else the curriculum is silent, and no calculator rule is added.

The book is written for a Year 6 reader. Sentences are short. Every new mathematics word is named and taught where it first appears and collected in the subtopic’s **Words for this subtopic** table, and the general vocabulary is held at or below Year 6 reading level, so the difficulty lands on the mathematics, not on the reading.

The notation in this book. Subtraction and negative numbers use a proper minus — -3 , $5 - 8 = -3$ — never a hyphen; Chapters 1 and 6 and every temperature, sea-level and profit-and-loss context depend on it. Multiplication is $\times$ and division is $\div$. Numbers above 9999 use a space as the group separator: 10 000, 1 065, never a comma. Fractions are set as fractions, not $1/2$. Money is \$1.85, 50c, \$2. Percentages are 25%, unspaced. Times are 2 : 35 pm for 12-hour and 14 : 35 for 24-hour. Dates are in Australian order: 7 August 2026, or 07/08/2026. Metric symbols are separated from the number by a space and are never pluralised: 12 cm, 3.5 kg, 250 mL, 5 km. Degrees are 45° .

Everything real is really real. Every price, fare, timetable, temperature record, population figure and sports record 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. Anything presented as current carries an as at stamp. Software is named by category — spreadsheet, dynamic geometry software, graphing tool, simulation tool — never by product name, and no menu paths are given, so the book does not date with a software release.

Checks, tasks and reviews are classroom checks, not examinations. Every instrument in this book is school-designed and untimed in principle; materials are permitted wherever the curriculum assumes them, and no student sits more than 25 marks or about 30 minutes at once. See the teacher notes below.

Which book is which. This is the single-level Year 6 book. The Levels 5–6 band book is a separate product for composite Year 5/6 classes; a straight Year 6 class uses this one. Nothing in this book is shared with the band book — the two are written independently.

What this book covers

The table below is the coverage register for this book: all 24 content descriptions of VC2 Mathematics Level 6, 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.

#	Code	Strand	Owner	Subtopic title	Elaboration ids	Elabs	MCQs
1	VC2M6N0 1	Number	1B	Integers on the number line and the Cartesian plane	VC2M6N0 1.E01, .E02, .E03, .E04, .E05	5	144
2	VC2M6N0 2	Number	1A	Prime, composite, square and triangular numbers	VC2M6N0 2.E01, .E02, .E03, .E04, .E05	5	144
3	VC2M6N0 3	Number	2A	Equivalent fractions: comparing and ordering on one number line	VC2M6N0 3.E01, .E02, .E03, .E04	4	48
4	VC2M6N0 4	Number	2C	Adding and subtracting decimals	VC2M6N0 4.E01, .E02, .E03, .E04	4	18
5	VC2M6N0 5	Number	2B	Adding and subtracting fractions using equivalence	VC2M6N0 5.E01, .E02, .E03, .E04	4	33
6	VC2M6N0 6	Number	2D	Multiplying and dividing decimals by powers of 10	VC2M6N0 6.E01, .E02, .E03	3	96
7	VC2M6N0 7	Number	2E	Finding a fraction, decimal or percentage of a quantity	VC2M6N0 7.E01, .E02, .E03, .E04, .E05	5	96
8	VC2M6N0 8	Number	3A	Approximating solutions with rational	VC2M6N0 8.E01, .E02, .E03, .E04,	6	48

#	Code	Strand	Owner	Subtopic title	Elaboration ids	Elabs	MCQs
				numbers and percentages	.E05, .E06		
9	VC2M6N09	Number	3B	Modelling with rational numbers and percentages in financial contexts	VC2M6N09.E01, .E02, .E03	3	48
10	VC2M6A01	Algebra	4A	Growing patterns and the rules that generate them	VC2M6A01.E01, .E02, .E03, .E04, .E05	5	48
11	VC2M6A02	Algebra	4B	Unknown values in equations with brackets and mixed operations	VC2M6A02.E01, .E02, .E03	3	48
12	VC2M6A03	Algebra	4C	Algorithms that generate sets of numbers	VC2M6A03.E01, .E02, .E03	3	48
13	VC2M6M01	Measurement	5A	Converting between common metric units	VC2M6M01.E01, .E02, .E03	3	48
14	VC2M6M02	Measurement	5B	Establishing and using the formula for the area of a rectangle	VC2M6M02.E01, .E02, .E03, .E04	4	48
15	VC2M6M03	Measurement	5C	Elapsed time, timetables and itineraries	VC2M6M03.E01, .E02, .E03	3	18
16	VC2M6M04	Measurement	5D	Angles on a straight line, at a	VC2M6M04.E01, .E02, .E03	3	33

#	Code	Strand	Owner	Subtopic title	Elaboration ids	Elabs	MCQs
				point, and vertically opposite	3		
17	VC2M6SP01	Space	6A	Cross-sections and right prisms	VC2M6SP01.E01, .E02, .E03, .E04, .E05, .E06	6	3
18	VC2M6SP02	Space	6B	The four quadrants of the Cartesian plane	VC2M6SP02.E01, .E02, .E03, .E04, .E05	5	3
19	VC2M6SP03	Space	6C	Combining transformations: tessellations and geometric patterns	VC2M6SP03.E01, .E02, .E03, .E04, .E05	5	3
20	VC2M6ST01	Statistics	7A	Comparing data sets: mode, range and shape	VC2M6ST01.E01, .E02, .E03, .E04	4	3
21	VC2M6ST02	Statistics	7B	Statistics in the media	VC2M6ST02.E01, .E02, .E03, .E04	4	3
22	VC2M6ST03	Statistics	7C	Planning and conducting a statistical investigation	VC2M6ST03.E01, .E02, .E03, .E04, .E05, .E06	6	3
23	VC2M6P01	Probability	8A	Describing probabilities with fractions, decimals and percentages	VC2M6P01.E01, .E02, .E03, .E04, .E05	5	48
24	VC2M6P02	Probability	8B	Simulations and the effect of	VC2M6P02.E01, .	4	33

#	Code	Strand	Owner	Subtopic title	Elaboration ids	Elabs	MCQs
				increasing the number of trials	E02, .E03, .E04		
				Totals		102	1 065

Notes on this table:

- **The Elaboration ids column is the join key** to the question bank, the short-answer items and the coverage row. Elaborations are VCAA's illustrations of what a content description might look like — they are not the content description itself. Coverage is judged against the content description text; an elaboration that is not used is not a gap, and a subtopic is not a walk through its elaborations in order.
- **Six of the 102 elaborations invoke Aboriginal and Torres Strait Islander content and are not taught in this book:** VC2M6N08.E06, VC2M6SP01.E06, VC2M6SP02.E05, VC2M6SP03.E05, VC2M6ST02.E04 and VC2M6P01.E05. They are excluded under the notice on the first page of every booklet in this series, and the exclusion is recorded, not silent — the coverage audit reports each of the six as an accepted exclusion. 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 the six keeps its other elaborations.
- **The counts close.** 24 codes, 24 owners — every code is owned exactly once, no subtopic exists without a content description, and none is carried as prerequisite scaffolding. 102 elaboration ids, each carried exactly once. 1 065 banked questions keyed to these codes. Register check against the authority file: 24 codes listed, 24 owned, 0 unowned, 0 owned more than once, 0 left to another book.
- **The question bank is unevenly distributed, and that is not a scope signal.** VC2M6N01 and VC2M6N02 carry 144 banked items each; every Space and Statistics content description carries exactly 3. Bank density measures the bank, not the curriculum — Chapters 6 and 7 are full-weight chapters carrying six of the 24 content descriptions between them. Their test items are authored fresh, not drawn from the bank; see the teacher notes below.
- **Codes that do not exist.** Level 6 Number ends at **N09** (there is no VC2M6N10, though Level 5 has VC2M5N10), Algebra at **A03**, Measurement at **M04**, Space at **SP03**, Statistics at **ST03** and Probability at **P02**. The numbering stops because the curriculum stops, not because anything is missing.

What this book does not cover. This book covers Level 6 only. What Level 5 taught is assumed, not re-taught: expressing counting numbers as products of factors; decimals on a number line and a first-quadrant grid coordinate system; comparing and ordering unit fractions and mixed numerals; adding and subtracting fractions with the same or related denominators; decimals beyond hundredths and multiplication of larger numbers; 100% as the complete whole; reasonableness checking and the modelling cycle in additive and multiplicative situations; unknowns in multiplication and division equations; following and creating algorithms with branching and repetition; choosing metric units and finding perimeter and area by counting square units; 12- and 24-hour time; constructing and measuring angles with a protractor; objects and nets; single translations, reflections and rotations; acquiring, validating and representing data; and listing outcomes of chance experiments with repeated trials. One note for planning: VC2 has no pattern content description at Level 5, so subtopic 4A picks up a thread last seen at Level 4 and is taught from the ground up, not revised. Everything past the Level 6 line stays out: adding and subtracting integers (1B only *locates and represents* them); multiplying and dividing fractions; decimal $\times$ decimal and decimal $\div$ decimal (2D is multiples of powers of 10 only); expressing one quantity as a percentage of another; ratios and rates; pronumerals — Chapter 4 uses $\square$, $\triangle$ or a blank, never letters; index notation beyond the square; mean and median — 7A uses mode, range and shape; stem-and-leaf plots; area formulas beyond the rectangle; volume and surface area; π and circles; parallel-line angle relationships and the triangle angle sum — 5D is the three named relationships only; coordinate rules for transforming a set of points; and the term “sample space” — Chapter 8 uses “possible outcomes”. Each of these is owned by a named Level 7 content description, and the Level 7 book owns them. 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 **school-designed classroom checks**: short, frequent, handwritten, with materials permitted wherever the content description assumes them. **Nothing here is an examination** — nothing is a VCAA instrument, nothing contributes to a VCAA result, and nothing may be described as one. No student sits more than 25 marks or about 30 minutes at once. Every paper carries this standing notice:

This is a school-designed paper. It is not a VCAA instrument. Achievement in the Victorian Curriculum is reported against the Level 6 achievement standard, not against a mark on this paper.

Marking rule: 5 marks per subtopic. Every content description is worth the same, so a coverage audit reads delivery straight off the mark schedule, and an under-taught content description shows up as a short question rather than hiding.

Administration — the standing rules. Timing is about 1 minute per mark plus 5 minutes reading; the guidance durations below are for planning a lesson, not a limit to beat. Items are short-answer and worked-response; multiple choice is used sparingly and only where selection is genuinely the skill (for example “which display suits this variable?” in 7A) — and then with four options A–D, never five. Every paper carries fully worked solutions, not just an answer key, plus a compact answer key for self-checking, and each test is preceded in the booklet by the content description codes it assesses, so a teacher can mark diagnostically against the achievement standard. The Chapter 6 and Chapter 7 test items are **authored fresh**, not drawn from the bank, because the bank carries only 3 items for each Space and Statistics content description. Calculator status follows the content description, as set out in *How to use this book*: 2D is calculator-free on its test items, 2E’s digital-tool items are the only calculator-permitted part of T2, and T7 and T8 require spreadsheet, graphing or simulation tool access where the content description makes digital tools compulsory.

The chapter tests — 8 tests, 120 marks.

Test	Chapter	Subtopics	Marks	Equipment stated on the paper
T1	1 — Integers and number properties	2	10	—
T2	2 — Fractions, decimals and percentages	5	25	“No calculator” on the 2D items; calculator permitted on the 2E digital-tool items only
T3	3 — Estimation and mathematical modelling	2	10	Calculator permitted; spreadsheet optional for 3B
T4	4 — Patterns, equations and algorithms	3	15	Grid paper
T5	5 — Measurement	4	20	Ruler, protractor, timetable extract supplied with the paper
T6	6 — Space	3	15	Ruler, grid paper
T7	7 — Statistics	3	15	Spreadsheet or graphing tool access; data sets supplied
T8	8 — Probability	2	10	Simulation tool

Test	Chapter	Subtopics	Marks	Equipment stated on the paper
				access for the 8B items; dice and spinners
	Chapter tests	24	120	

The investigation and modelling tasks — 2 tasks, 40 marks. The verbs *plan and conduct*, *pose and refine* (VC2M6ST03) and *formulate ... and justify the choices made* (VC2M6N09) cannot be evidenced by a timed written item. Each task runs over about two lessons, ships with a rubric, and is part of the assessment of the book — not optional extra material.

Task	Assesses	Supported by	Marks
I1 — Pose, refine and conduct a statistical investigation	VC2M6ST03	7A, 7B, 6B	20
I2 — Model a real financial decision and justify the choices made	VC2M6N09	2E, 3A, 5A	20

Each rubric has four criteria worth 5 marks each, written as **observable student actions**, not adjectives:

- **I1** — posing and refining the question · collecting and organising the data · choosing and constructing the comparative display · communicating findings **within the context of the investigation**.
- **I2** — formulating the problem · choosing operations and calculation strategies · solving and checking for reasonableness · interpreting the solution in terms of the situation **and justifying the choices made**.

I1 may be run jointly with a VC2 Science Level 6 investigation — the two curricula describe the same skill from two sides — but it is **marked against VC2M6ST03 only**. VC2M6ST03 and VC2M6N09 are also assessed in written form in T7 and T3 (reading a completed display; formulating a number sentence from a situation); the tasks are how the *conduct* and *justify* halves are evidenced, so a student absent for a task is not left with an unassessed content description.

The end-of-year reviews — 2 papers, 60 marks.

Paper	Coverage	Marks	Guidance time
R1 — Number and Algebra	Ch1–Ch4, all 12 CDs	30	35 min
R2 — Measurement, Space, Statistics and Probability	Ch5–Ch8, all 12 CDs	30	35 min

Both papers are cumulative and carry **no new content**: no content description is assessed in a review that was not already assessed in its chapter test. Each paper is sectioned by strand so a teacher can mark diagnostically, and each carries fully worked solutions. Together R1 and R2 are the Year 6 exit check and the readiness check for the Level 7 book; they are not timed as examinations, and may be run across two sessions each if that suits the class.

Total assessed marks: 120 (chapter tests) + 40 (tasks) + 60 (reviews) = 220. All 24 content descriptions are assessed in a chapter test, 2 are additionally task-assessed, and all 24 are assessed again in a review.

The question bank. The bank holds 1 065 multiple-choice items keyed to the 24 codes in the coverage map — Number 675, Measurement 147, Algebra 144, Probability 81, Space 9 and Statistics 9. 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 two exceptions to drawing from the bank are the Chapter 6 and Chapter 7 tests, whose items are authored fresh for the reason given above.

Safety notes

The practical work in this book uses everyday classroom materials — rulers, protractors, grid paper, scissors, paper tiles, dice, spinners, counters, printed timetable extracts, and access to a spreadsheet, a graphing tool or a simulation tool — and every task names its materials at the point of use. 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 tiles in the 6C interlocking-tessellation work, used under supervision.
2. **Fragile instruments are carried, not swung.** Protractors and rulers — the 5D angle work and its test, and the Chapter 6 booklets — are handled gently, passed hand to hand, and collected at the end of the task. Breakage is reported at once. A protractor measures angles; nothing in the book is heated, and nothing is pointed at anyone.
3. **Small items stay on the desk.** Dice, spinners and counters in Chapter 8 and its test are not food and not toys; they are collected and counted back at the end of the lesson.
4. **Chance equipment stays with its task.** The dice and spinners in 8A, 8B and T8 are equipment for recording results, not games; the teacher collects them when the trials are done.
5. **Surveys respect people.** The 7C investigation and task I1 ask only questions the teacher has approved, and responses are recorded as numbers and counts — never as names. Surveying another class or year level needs the teacher's permission first, and the school's rules govern what may be asked and what may be kept.
6. **Media items stay printed.** The 7B critique work uses media items printed in the book, cited by masthead, headline and publication date; no student browsing is needed to find them.
7. **Screens follow the school's rules.** The spreadsheet, graphing and simulation work in 2E, 3B, 4C, 7A, 7C and 8B runs on school-approved devices and accounts, on school-approved data sets. Nothing personal is typed into a shared file, and investigation data is recorded as counts, never as names.
8. **Timetables are for the classroom.** The 5C journey work uses the printed extracts supplied with the book and with T5. Planning a real journey or excursion is a school activity run under the school's own permissions, not a task a student does alone from this book.