# Mathematics Stage 5: Sample scope and sequence (Stage 4 Core)

The Core–Paths structure is designed to encourage aspiration in students and provide the flexibility needed to enable teachers to create pathways for students working towards Stage 6. The structure is intended to extend students as far along the continuum of learning as possible and provide solid foundations for the highest levels of student achievement. The structure allows for a diverse range of endpoints up to the end of Stage 5.

This scope and sequence has been developed to focus on Stage 4 Core content with some Stage 3 outcomes revisited.

Students should not be locked into a definitive pathway in Stage 4. Teachers are best placed to make programming decisions about pathways towards Stage 6 courses in the middle of students’ Stage 5 learning.

In Mathematics 7–10 there is one overarching **Working mathematically outcome.**

A student develops understanding and fluency in mathematics through: exploring and connecting mathematical concepts; choosing and applying mathematical techniques to solve problems; and communicating their thinking and reasoning coherently and clearly.

## Year 9 – Term 1

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| Weeks 1–3 | Weeks 4–7 | Weeks 8–10 |
| **Unit:** Squares and square roots, substituting and solving simple equations (revising and consolidating Stage 4 content)**Focus area(s):** Indices and Equations operates with primes and roots, positive-integer and zero indices involving numerical bases and establishes the relevant index laws solves linear equations of up to 2 steps and quadratic equations of the form $ax^{2}=c$ | **Unit:** Pythagoras’ theorem **Focus area(s):** Right-angled triangles (Pythagoras’ theorem) applies Pythagoras’ theorem to solve problems in various contexts | **Unit:** Percentages**Focus area(s):** Fractions, decimals and percentagesrepresents and operates with percentages to solve problems**Note:** fractions and decimals already studied. |
| Outcomes: MA4-IND-C-01, MA4-EQU-C-01Life Skills outcomes: MALS-ADS-01,MALS-MDI-01 | Outcomes: MA4-PYT-C-01Life Skills outcomes: Review and consolidate prior Life Skills outcomes | Outcomes: MA4-FRC-C-01Life Skills outcomes: MALS-DEP-01 |

## Year 9 – Term 2

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| Weeks 1–4 | Weeks 5–6 | Weeks 7–10 |
| **Unit:** Understanding percentages (revising and consolidating Stage 4 content)**Focus area(s):** Fractions, decimals and percentagesrepresents and operates with percentages to solve problems | **Unit:** Perimeter of plane shapes**Focus area(s):** Length applies knowledge of the perimeter of plane shapes (excluding circles) to solve problems **Note:** study of circles covered in next unit. | **Unit:** Circumference of circles**Focus area(s):** Lengthapplies knowledge of the circumference of circles to solve problems |
| Outcomes: MA4-FRC-C-01Life Skills outcomes: MALS-DEP-01 | Outcomes: MA4-LEN-C-01Life Skills outcomes: MALS-LEN-01 | Outcomes: MA4-LEN-C-01Life Skills outcomes: MALS-LEN-01 |

## Year 9 – Term 3

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| Weeks 1–2 | Weeks 3–6 | Weeks 7–8 | Weeks 9–10 |
| **Unit:** Converting units and finding areas**Focus area(s):** Area applies knowledge of area and composite area involving triangles, quadrilaterals to solve problems**Note:** study of circles covered in next unit. | **Unit:** Area of circles**Focus area(s):** Areaapplies knowledge of area and composite area involving circles to solve problems | **Unit**: Prisms and drawing different views (Stage 3 content)**Focus area(s):** Three-dimensional spatial structure (Stage 3)visualises, sketches and constructs three-dimensional objects, including prisms and pyramids, making connections to two-dimensional representations **selects and uses the appropriate unit to estimate, measure and calculate volumes and capacities** | **Unit:** Volume of prisms**Focus area(s):** Volumeapplies knowledge of volume to solve problems involving right prisms **Note:** exclude study of cylinders at this point of learning. |
| Outcomes: MA4-ARE-C-01Life Skills outcomes: MALS-ARE-01 | Outcomes: MA4-ARE-C-01Life Skills outcomes: MALS-ARE-01 | Outcomes: MA3-3DS-01,MA3-3DS-02Life Skills outcomes: MALS-GEO-01 | Outcomes: MA4-VOL-C-01Life Skills outcomes: MALS-VOL-01 |

## Year 9 – Term 4

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| Weeks 1–3 | Weeks 4–5 | Weeks 6–10 |
| **Unit:** Volume of cylinders and capacity **Focus area(s):** Volumeapplies knowledge of volume and capacity to solve problems involving cylinders | **Unit:** Finding sizes of unknown angles (revising and consolidating Stage 4 content)**Focus area(s):** Angle relationships applies angle relationships to solve problems, including those related to transversals on sets of parallel lines | **Unit:** Properties of geometrical figures**Focus area(s):** Properties of geometrical figuresidentifies and applies the properties of triangles and quadrilaterals to solve problems |
| Outcomes: MA4-VOL-C-01Life Skills outcomes: MALS-VOL-01 | Outcomes: MA4-ANG-C-01Life Skills outcomes: Review and consolidate prior Life Skills outcomes | Outcomes: MA4-GEO-C-01Life Skills outcomes: MALS-GEO-01 |

## Year 10 – Term 1

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| Weeks 1–3 |  | Weeks 4–6 | Weeks 7–10  |
| **Unit:** Converting between time units (Stage 3 content)**Focus area(s):** Non-spatial measure (Stage 3)measures and compares duration, using 12- and 24-hour time and am and pm notation | **Unit:** Perimeter of plane shapes (revising and consolidating Stage 4 content)**Focus area(s):** Lengthselects and uses the appropriate unit and device to measure lengths and distances (including perimeters) | **Unit:** Ratios and rates **Focus area(s):** Ratios and rates solves problems involving ratios and rates, and analyses distance–time graphs |
| Outcomes: MA3-NSM-02Life Skills outcomes: MALS-TIM-01, MALS-TIM-02 | Outcomes: MA4-LEN-C-01Life Skills outcomes: MALS-LEN-01 | Outcomes: MA4-RAT-C-01Life Skills outcomes: MALS-ADS-01, MALS-MDI-01 |

## Year 10 – Term 2

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| Weeks 1–3 | Weeks 4–10 |
| **Unit:** Different types of graphs (revising and consolidating Stage 4 content)**Focus area(s):** Data classification and visualisation classifies and displays data using a variety of graphical representations | **Unit:** Data analysis **Focus area(s):** Data analysis analyses simple datasets using measures of centre, range and shape of the data  |
| Outcomes: MA4-DAT-C-01Life Skills outcomes: MALS-DAT-01 | Outcomes: MA4-DAT-C-02Life Skills outcomes: MALS-DAT-02 |

## Year 10 – Term 3

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| Weeks 1–3 | Weeks 4–10 |
| **Unit:** Number patterns, substitution and solving simple equations**Focus area(s):** Algebraic techniques and Equations applies algebraic techniques to solve problems involving simple linear and quadratic equations solves linear equations of up to 2 steps and quadratic equations of the form $ax^{2}=c$ | **Unit:** Linear relationships**Focus area(s):** Linear relationshipscreates and displays number patterns and finds graphical solutions to problems involving linear relationships |
| Outcomes: MA4-ALG-C-01, MA4-EQU-C-01Life Skills outcomes: MALS-PAT-01 | Outcomes: MA4-LIN-C-01Life Skills outcomes: MALS-POS-01 |

## Year 10 – Term 4

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| Weeks 1–3 | Weeks 4–10 |
| **Unit:** Chance (Stage 3 content)**Focus area(s):** Chance (Stage 3)conducts chance experiments and quantifies the probability | **Unit:** Probability**Focus area(s):** Probabilitysolves problems involving the probabilities of simple chance experiments |
| Outcomes: MA3-CHAN-01Life Skills outcomes: MALS-PRO-01 | Outcomes: MA4-PRO-C-01Life Skills outcomes: MALS-PRO-01 |