

CambridgeMATHS NSW Stage 5 Year 10 Core & Advanced / Extension Paths

Every section of every chapter mapped to the NSW Syllabus

Key:

Consolidating Stage 4 and Year 9	This book provides some opportunities to consolidate prior learning.
Stage 4 plus Stage 5 Core	Some sections begin in Stage 4 then progress to Stage 5 Core.
Stage 5 Core	The treatment of Stage 5 Core is somewhat faster than our Core & Standard Path books.
Stage 5 Core and Stage 5 Path (Adv)	These are identified as 'Path topics for Advanced'. They occur in both books.
Stage 5 Core and Stage 5 Path (Ext)	These are identified as 'Path topics for Extension'. They occur in both books.
Extending beyond Stage 5 Core and Path Topics	These sections cover extra concepts which are somewhat useful for Stage 6 Advanced/Extension.

Chapter 1 Algebra, equations and linear relationships	
1A Review of algebra	Consolidating Stage 4 and Year 9
1B Solving linear equations	Stage 4 plus Stage 5 Core
1C Linear inequalities	Stage 5 Path (Adv): <i>Equations B</i>
1D Solving linear equations involving more complex algebraic fractions	Stage 5 Path (Adv): <i>Linear relationships C</i>
1E Graphing straight lines	Consolidating Stage 4 and Year 9
1F Finding the equation of a line	Stage 5 Path (Adv): <i>Linear relationships C</i>
1G Length and midpoint of a line segment	Stage 5 Path (Adv): <i>Linear relationships C</i>
1H Parallel lines and perpendicular lines	Stage 5 Core and Stage 5 Path (Adv): <i>Linear relationships C</i>
1I Solving simultaneous equations using substitution	Stage 5 Path (Adv): <i>Equations C</i>
1J Solving simultaneous equations using elimination	Stage 5 Path (Adv): <i>Equations C</i>
1K Further applications of simultaneous equations	Stage 5 Path (Adv): <i>Equations C</i>
1L Regions on the Cartesian plane	Stage 5 Path (Adv): <i>Functions and other graphs</i>
Chapter 2 Properties of geometrical figures and circle geometry	
2A Review of geometry	Consolidating Stage 4 and Year 9
2B Congruent triangles	Stage 5 Path (Ext): <i>Properties of geometrical figures B and C</i>
2C Using congruence to investigate quadrilaterals	Stage 5 Path (Ext): <i>Properties of geometrical figures B and C</i>
2D Similar figures	Consolidating Year 9
2E Proving and applying similar triangles	Stage 5 Path (Ext): <i>Circle geometry</i>
2F Circle terminology and chord properties	Stage 5 Path (Ext): <i>Circle geometry</i>
2G Angle properties of circles: Theorems 1 and 2	Stage 5 Path (Ext): <i>Circle geometry</i>
2H Angle properties of circles: Theorems 3 and 4	Stage 5 Path (Ext): <i>Circle geometry</i>
2I Theorems involving tangents	Stage 5 Path (Ext): <i>Circle geometry</i>
2J Intersecting chords, secants and tangents	Stage 5 Path (Ext): <i>Circle geometry</i>
Chapter 3 Indices, exponentials and logarithms	
3A Review of index laws	Consolidating Stage 4 and Year 9
3B Negative indices	Stage 5 Path (Adv): <i>Indices B</i>
3C Scientific notation	Consolidating Year 9
3D Fractional indices	Stage 5 Path (Adv): <i>Indices C</i>
3E Exponential equations	Stage 5 Path (Adv): <i>Non-linear relationships C</i>
3F Exponential functions and their graphs	Stage 5 Path (Adv): <i>Non-linear relationships C</i>
3G Exponential growth and decay	Stage 5 Path (Adv): <i>Non-linear relationships C</i>
3H Introducing logarithms	Stage 5 Path (Adv): <i>Logarithms</i>
3I Logarithmic scales	Stage 5 Path (Adv): <i>Logarithms</i>
3J Laws of logarithms	Stage 5 Path (Adv): <i>Logarithms</i>
3K Solving exponential equations using logarithms	Stage 5 Path (Adv): <i>Logarithms</i>
Chapter 4 Measurement and surds	
4A Irrational numbers including surds	Stage 5 Path (Adv): <i>Indices C</i>
4B Adding and subtracting surds	Stage 5 Path (Adv): <i>Indices C</i>
4C Multiplying and dividing surds	Stage 5 Path (Adv): <i>Indices C</i>
4D Rationalising the denominator	Stage 5 Path (Adv): <i>Indices C</i>
4E Review of length	Consolidating Stage 4
4F Pythagoras' theorem in three-dimensional problems	Stage 5 Path (Stan/Adv): <i>Trigonometry C</i>
4G Review of Area	Consolidating Stage 4
4H Measurement errors and accuracy	Stage 5 Core: <i>Numbers of any magnitude</i>
4I Surface area of prisms and cylinders	Stage 5 Core and Path (Stan/Adv): <i>Area and surface area A and B</i>
4J Surface area of pyramids and cones	Stage 5 Path (Stan/Adv): <i>Area and surface area B</i>
4K Volume of prisms and cylinders	Stage 5 Core: <i>Volume A</i>
4L Volume of pyramids and cones	Stage 5 Path (Stan/Adv): <i>Volume B</i>
4M Surface area and volume of spheres	Stage 5 Path (Stan/Adv): <i>Area and surface area B and Volume B</i>
Chapter 5 Quadratic expressions and quadratic equations	
5A Expanding expressions	Consolidating Stage 4 and Year 9
5B Factorising expressions	Consolidating Stage 4 and Year 9
5C Multiplying and dividing algebraic fractions	Stage 5 Core and Stage 5 Path (Adv): <i>Algebraic techniques B and C</i>
5D Factorising monic quadratic trinomials	Stage 5 Path (Adv): <i>Algebraic techniques B</i>
5E Factorising non-monic quadratic trinomials	Stage 5 Path (Adv): <i>Algebraic techniques C</i>
5F Factorising by completing the square	Stage 5 Path (Adv): <i>Algebraic techniques C</i>
5G Solving quadratic equations by factorising	Stage 5 Path (Adv): <i>Equations B and C</i>
5H Applications of quadratic equations	Stage 5 Path (Adv): <i>Equations B and C</i>
5I Solving quadratic equations by completing the square	Stage 5 Path (Adv): <i>Equations C</i>
5J Solving quadratic equations using the quadratic formula	Stage 5 Path (Adv): <i>Equations C</i>
Chapter 6 Trigonometry	
6A Trigonometric ratios	Stage 5 Core: <i>Trigonometry A</i>
6B Finding unknown angles	Stage 5 Core: <i>Trigonometry A</i>
6C Applications in two dimensions	Stage 5 Core: <i>Trigonometry B</i>
6D Directions and bearings	Stage 5 Core: <i>Trigonometry B</i>
6E Applications in three dimensions	Stage 5 Path (Stan/Adv): <i>Trigonometry C</i>

6F	The sine rule	Stage 5 Path (Stan/Adv): <i>Trigonometry C</i>
6G	The cosine rule	Stage 5 Path (Stan/Adv): <i>Trigonometry C</i>
6H	Area of a triangle	Stage 5 Path (Stan/Adv): <i>Trigonometry C</i>
6I	The unit circle	Stage 5 Path (Adv): <i>Trigonometry D</i>
6J	Graphs of trigonometric functions	Stage 5 Path (Adv): <i>Trigonometry D</i>
6K	Exact values and solving trigonometric equations	Stage 5 Path (Adv): <i>Trigonometry D</i>
Chapter 7 Parabolas and rates of change		
7A	Exploring parabolas	Stage 5 Core
7B	Sketching parabolas using transformations	Stage 5 Path (Adv): <i>Non-linear relationships B</i>
7C	Sketching parabolas using factorisation	Stage 5 Path (Adv): <i>Non-linear relationships B</i>
7D	Sketching parabolas by completing the square	Stage 5 Path (Adv): <i>Non-linear relationships B</i>
7E	Sketching parabolas using the quadratic formula and the discriminant	Stage 5 Path (Adv): <i>Non-linear relationships B</i>
7F	Applications of parabolas	Stage 5 Path (Adv): <i>Non-linear relationships B</i>
7G	Intersection of lines and parabolas	Stage 5 Path (Adv): <i>Non-linear relationships B</i>
7H	Rates of change	Stage 5 Path (Adv): <i>Variation and rates of change B</i>
7I	Average and instantaneous rates of change	Extending beyond Stage 5 Core and Path Topics
7J	Direct variation and inverse variation	Stage 5 Path (Stan/Adv): <i>Variation and rates of change A</i>
Chapter 8 Probability		
8A	Review of probability	Consolidating Stage 4 and Year 9
8B	Set notation in Venn diagrams and two-way tables	Stage 5 Path (Adv): <i>Probability B</i>
8C	The addition rule	Stage 5 Path (Adv): <i>Probability B</i>
8D	Conditional probability	Stage 5 Path (Adv): <i>Probability B</i>
8E	Two-step experiments using arrays	Stage 5 Core: <i>Probability A</i>
8F	Using tree diagrams	Stage 5 Core: <i>Probability A</i>
8G	Independent events	Stage 5 Core: <i>Probability A</i>
Chapter 9 Statistics		
9A	Collecting representative data	Stage 5 Path (Stan/Adv): <i>Data Analysis C</i>
9B	Review of data displays	Consolidating Stage 4 and Year 9
9C	Two-way tables	Stage 5 Path (Adv): <i>Probability B</i>
9D	Summary statistics	Stage 5 Core: <i>Data analysis A</i>
9E	Box plots	Stage 5 Core: <i>Data analysis A</i>
9F	Standard deviation	Stage 5 Core: <i>Data analysis A</i>
9G	Time-series data	Stage 5 Core: <i>Data analysis A</i>
9H	Bivariate data and scatter plots	Stage 5 Path (Stan/Adv): <i>Data Analysis B</i>
9I	Line of best fit by eye	Stage 5 Path (Stan/Adv): <i>Data Analysis B</i>
Chapter 10 Polynomials, functions and graphs		
10A	Functions and their notation	Stage 5 Path (Adv): <i>Functions and other graphs</i>
10B	Introducing polynomials	Stage 5 Path (Adv/Ext): <i>Polynomials</i>
10C	Expanding and simplifying polynomials	Stage 5 Path (Adv/Ext): <i>Polynomials</i>
10D	Dividing polynomials	Stage 5 Path (Adv/Ext): <i>Polynomials</i>
10E	The remainder and factor theorems	Stage 5 Path (Adv/Ext): <i>Polynomials</i>
10F	Solving polynomial equations	Stage 5 Path (Adv/Ext): <i>Polynomials</i>
10G	Graphing cubic functions of the form $y = a(x - h)^3 + k$	Stage 5 Path (Adv): <i>Non-linear relationships</i> and (Adv/Ext): <i>Polynomials</i>
10H	Graphs of polynomials	Stage 5 Path (Adv): <i>Non-linear relationships C</i>
10I	Graphs of circles	Stage 5 Path (Adv): <i>Non-linear relationships C</i>
10J	Hyperbolic functions and their graphs	Stage 5 Path (Adv): <i>Non-linear relationships C</i>
10K	Further transformations of graphs	Stage 5 Path (Adv): <i>Functions and other graphs</i>
Chapter 11 Networks (Online Only)		
11A	Introduction to networks	Stage 5 Path (Stan): <i>Networks</i>
11B	Isomorphic and planar graphs	Stage 5 Path (Stan): <i>Networks</i>
11C	Trails, paths and Eulerian circuits	Stage 5 Path (Stan): <i>Networks</i>
11D	Shortest path problems	Extending beyond Stage 5 Core and Path Topics
Chapter 12 Combinatorics (Online Only)		
12A	Counting principles and factorial notation	Extending beyond Stage 5 Core and Path Topics
12B	Arrangements	Extending beyond Stage 5 Core and Path Topics
12C	Selections	Extending beyond Stage 5 Core and Path Topics
12D	Applications of counting in probability	Extending beyond Stage 5 Core and Path Topics

Contents are subject to change prior to publication