

NSW Syllabus Content Map

Education Perfect Maths is an online learning resources with scaffolded smart lessons aligned to the NSW Syllabus. This table aligns the lessons provided by Education Perfect mapped to the NSW Syllabus.

Stage 4 NSW Syllabus	
Number and Algebra	
Computation with Integers (MA4-4NA) Compares, orders and calculates with integers, applying a range of strategies to aid computation	Education Perfect Lessons
Apply the associative, commutative and distributive laws to aid mental and written computation (ACMNA151)	The Commutative Law The Associative Law The Distributive Law
Compare, order, add and subtract integers (ACMNA280)	Integers Comparing & Ordering Integers Adding & Subtracting Integers Extra Resources: Compare, Order & Locate Negative Numbers Extra Resources: Adding & Subtracting Negative Numbers
Carry out the four operations with rational numbers and integers, using efficient mental and written strategies and appropriate digital technologies (ACMNA183)	Integers Integer Addition Integer Subtraction Negative Integer Addition and Subtraction Multiplication Division Long Division Order of Operations Negative Integer Multiplication and Division Rational Numbers on the Number Line Adding and Subtracting Decimals on a Number Line Multiplying Decimals Dividing Decimals Extra Resources: Multiplying & Dividing Negative Numbers Extra Resources: Using the Four Operations & Rounding Extra Resources: Divisibility Tests Extra Resources: Prime Numbers Extra Resources: Highest Common Factor and Lowest Common Multiple
Fractions, Decimals and Percentages (MA4-5NA) Operates with fractions, decimals and percentages	

<p>Compare fractions using equivalence; locate and represent positive and negative fractions and mixed numerals on a number line (ACMNA152)</p>	<p>Introduction to Fractions Mixed Numbers Fraction Walls and Number Lines Rational Numbers on a Number Line Comparing Fractions Comparing Fractions with the Same Denominator</p>
<p>Solve problems involving addition and subtraction of fractions, including those with unrelated denominators (ACMNA153)</p>	<p>Adding Fractions with the Same Denominator Adding Fractions with a Different Denominator Subtracting Fractions with the Same Denominator Subtracting Fractions with a Different Denominator Adding Decimals Subtracting Decimals</p>
<p>Multiply and divide fractions and decimals using efficient written strategies and digital technologies (ACMNA154)</p>	<p>Multiplying Fractions Dividing Fractions Multiplying Decimals Dividing Decimals</p>
<p>Express one quantity as a fraction of another, with and without the use of digital technologies (ACMNA155)</p>	<p>Using Fractions</p>
<p>Round decimals to a specified number of decimal places (ACMNA156)</p>	<p>Introduction to Decimals How Decimals Work Rounding Decimals</p>
<p>Investigate terminating and recurring decimals (ACMNA184)</p>	<p>Recurring Decimals Terminating Decimals and Rounding</p>
<p>Connect fractions, decimals and percentages and carry out simple conversions (ACMNA157)</p>	<p>Converting Between Fractions and Decimals Converting Between Percentages and Fractions Application: Town Planning Revision: Percentages and Decimals Revision: Converting Percentages to Fractions</p>
<p>Investigate the concept of irrational numbers, including π (ACMNA186)</p>	<p>Irrational Numbers</p>
<p>Find percentages of quantities and express one quantity as a percentage of another, with and without the use of digital technologies (ACMNA158)</p>	<p>Introduction to Percentages Using Percentages Revision: Introduction to Percentages Revision: Using Percentages</p>
<p>Solve problems involving the use of percentages, including percentage increases and decreases, with and without the use of</p>	<p>Discounts Calculating Percentage Discounts Percentages and Money</p>

digital technologies (ACMNA187)	Percentages and Populations Extra Resources: Percentage Increase and Decrease Extra Resources: Percentages, Fractions and Ratios
Financial Mathematics (MA4-6NA) Solves financial problems involving purchasing goods	
Investigate and calculate the Goods and Services Tax (GST), with and without the use of digital technologies	Uses of Financial Mathematics Cost per Item Unit Pricing Budgeting Percentages and GST
Investigate and calculate 'best buys', with and without the use of digital technologies (ACMNA174)	Calculating a Best Buy: Choosing a Usage Plan Discounts Calculating Discounts Calculating Percentage Discounts
Solve problems involving profit and loss, with and without the use of digital technologies (ACMNA189)	Profit and Loss Calculating Profit and Loss Supply Chains
Ratios and Rates (MA4-7NA) Operates with ratios and rates, and explores their graphical representation	
Recognise and solve problems involving simple ratios (ACMNA173)	Introduction to Ratios Extra Resources: Percentages, Fractions and Ratios Extra Resources: Ratios Revision: Converting Between Percentages and Fractions Revision: Ratios
Solve a range of problems involving ratios and rates, with and without the use of digital technologies (ACMNA188)	Rates Ratios Applying Ratios and Rates
Investigate, interpret and analyse graphs from authentic data (ACMNA180)	Extra Resources: Investigate & Analyse Graphs
Algebraic Techniques (MA4-8NA) Generalises number properties to operate with algebraic expressions	
Introduce the concept of variables as a way of representing numbers using letters (ACMNA175)	Introduction to Algebra Extra Resources: Introduction to Algebra Revision: Variables, Conventions and Arithmetic

Extend and apply the laws and properties of arithmetic to algebraic terms and expressions (ACMNA177)	Manipulating Algebra Extra Resources: Substitution Extra Resources: Algebraic Operations Extra Resources: Algebraic Fractions
Simplify algebraic expressions involving the four operations (ACMNA192)	Simplifying Addition and Subtraction Simplifying Multiplication and Division Revision: Simplifying Expressions Extra Resources: Simplifying Addition and Subtraction Extra Resources: Simplifying Multiplication and Division
Create algebraic expressions and evaluate them by substituting a given value for each variable (ACMNA176)	Evaluating Algebraic Expressions Relating Words to Algebra Translating Between Word Descriptions and Algebraic Expressions Translating Between Authentic Situations and Algebraic Expressions Writing and Evaluating Algebraic Expressions Translating Between Situations and Algebraic Expressions Extra Resources: Algebraic Applications Revision: Evaluating Expressions and Using Formulas
Extend and apply the distributive law to the expansion of algebraic expressions (ACMNA190)	Expanding I Expanding II Extra Resources: Expanding
Factorise algebraic expressions by identifying numerical factors (ACMNA191)	Greatest Common Divisor (Highest Common Factor) Introduction to Factorising Extra Resources: Factorising Extra Resources: Multiples Extra Resources: Factors Extra Resources: Highest Common Factor and Lowest Common Multiple
Factorise algebraic expressions by identifying algebraic factors	Factorising Algebraic Expressions Factorising Algebraic Expressions with Powers
Indices (MA4-9NA) Operates with positive-integer and zero indices of numerical bases	
Investigate index notation and represent whole numbers as products of powers of prime numbers (ACMNA149)	Index Notation Prime & Composite Numbers Prime Factors Extra Resources: Powers Revision: Indices
Investigate and use square roots of perfect square numbers	Perfect Squares

(ACMNA150)	Square Roots Square Roots of Non-Perfect Squares Extra Resources: Squares & Square Roots
Use index notation with numbers to establish the index laws with positive-integer indices and the zero index (ACMNA182)	Dividing Indices Multiplying Indices Power of Powers The Power of Zero Extra Resources: Index Laws
Equations (MA4-10NA) Uses algebraic techniques to solve simple linear and quadratic equations	
Solve simple linear equations (ACMNA179)	Linear Equations Rearranging Linear Equations Linear Equations and the y-intercept Linear Equations and the Gradient Tables of Values
Solve linear equations using algebraic techniques and verify solutions by substitution (ACMNA194)	Balancing Equations Concrete Models Flow Charts Visual Methods for Solving Linear Equations Algebraic Methods for Solving Linear Equations Checking Solutions
Solve simple quadratic equations	Solving Quadratic Equations
Linear Relationships (MA4-11NA) Creates and displays number patterns; graphs and analyses linear relationships; and performs transformations on the Cartesian plane	
Given coordinates, plot points on the Cartesian plane, and find coordinates for a given point (ACMNA178)	Features of Cartesian Planes Cartesian Coordinates Plotting on a Cartesian Plane Applications of Cartesian Planes
Describe translations, reflections in an axis, and rotations of multiples of 90° on the Cartesian plane using coordinates (ACMMG181)	Translation Reflection Rotation Extension: Transformations
Plot linear relationships on the Cartesian plane, with and without the use of digital technologies (ACMNA193)	Drawing Graphs Features of Graphs Reading Graphs Analysing Graphs Plotting Linear Relationships
Solve linear equations using graphical techniques (ACMNA194)	Extension: Linear and Non-Linear Functions

Measurement and Geometry	
Length (MA4-12MG) Calculates the perimeters of plane shapes and the circumferences of circles	
Find perimeters of parallelograms, trapeziums, rhombuses and kites (ACMMG196)	Units of Length Perimeter Perimeter of Composite Shapes Perimeters of Kites, Rhombuses, Trapeziums and Parallelograms Revision: Perimeter Revision: Perimeter of Composite Shapes
Investigate the concept of irrational numbers, including π (ACMNA186)	Irrational Numbers
Investigate the relationship between features of circles, such as the circumference, radius and diameter; use formulas to solve problems involving circumference (ACMMG197)	Parts of a Circle Circumference of Circles Using the Circumference of Circles
Area (MA4-13MG) Uses formulas to calculate the areas of quadrilaterals and circles, and converts between units of area	
Choose appropriate units of measurement for area and convert from one unit to another (ACMMG195)	Units of Length Units of Area Converting Between Units of Area Converting Between Units of Area Applications
Establish the formulas for areas of rectangles, triangles and parallelograms and use these in problem solving (ACMMG159)	Area of Rectangles & Squares Area of Triangles Area of Parallelograms Area of Composite Shapes Revision: Area Revision: Area of Parallelograms
Find areas of trapeziums, rhombuses and kites (ACMMG196)	Area of Trapeziums Area of Rhombuses and Kites
Investigate the relationship between features of circles, such as the area and the radius; use formulas to solve problems involving area (ACMMG197)	Area of Circles Using the Area of Circles
Volume (MA4-14MG) Uses formulas to calculate the volumes of prisms and cylinders, and converts between units of volume	
Draw different views of prisms and solids formed from combinations	Introduction to Solids

of prisms (ACMMG161)	Prisms Types of Prisms Pyramids Curved Solids Extension: Composite Shapes Extension: Platonic Solids Extension: Polyhedra
Choose appropriate units of measurement for volume and convert from one unit to another (ACMMG195)	Units of Volume Converting Units of Volume
Develop the formulas for the volumes of rectangular and triangular prisms and of prisms in general; use formulas to solve problems involving volume (ACMMG198)	Volume of Rectangular Prisms Volume of Composite Shapes Calculating Volume of Triangular Prisms Revision: Volume of Rectangular Prisms
Calculate the volumes of cylinders and solve related problems (ACMMG217)	Calculating Volume of Cylinders Calculating Volume of Other Regular and Irregular Prisms
Time (MA4-15MG) Performs calculations of time that involve mixed units, and interprets time zones	
Solve problems involving duration, including using 12-hour and 24-hour time within a single time zone (ACMMG199)	Clocks Duration
Solve problems involving international time zones	Time Zones Timetables
Right-Angled Triangles (Pythagoras) (MA4-16MG) Applies Pythagoras' theorem to calculate side lengths in right-angled triangles, and solves related problems	
Investigate Pythagoras' theorem and its application to solving simple problems involving right-angled triangles (ACMMG222)	Pythagoras' Theorem Parts of a Triangle and the Hypotenuse Calculating Unknown Lengths Using Pythagoras' Theorem Solving Practical Problems Using Pythagoras' Theorem Revision: Angles Revision: Triangles Revision: Ratios Revision: Algebraic Substitution and Evaluation Revision: Solving Equations
Investigate the concept of irrational numbers (ACMNA186)	Irrational Numbers Revision: Squares and Square Roots

Properties of Geometrical Figures (MA4-17MG) classifies, describes and uses the properties of triangles and quadrilaterals, and determines congruent triangles to find unknown side lengths and angles	
Classify triangles according to their side and angle properties and describe quadrilaterals (ACMMG165)	Types of Triangles Quadrilaterals Extra Resources: Triangles Extra Resources: Quadrilaterals
Identify line and rotational symmetries (ACMMG181)	Line Symmetry Rotational Symmetry Extra Resources: Symmetry
Demonstrate that the angle sum of a triangle is 180° and use this to find the angle sum of a quadrilateral (ACMMG166)	Angles in Quadrilaterals Angles in Triangles
Use the properties of special triangles and quadrilaterals to solve simple numerical problems with appropriate reasoning	Applying Rules to Quadrilaterals Congruent Triangles Extension: Triangles
Define congruence of plane shapes using transformations (ACMMG200)	Introduction to Congruence Rotation and Reflection of Plane Shapes Translation and Congruence of Plane Shapes
Develop the conditions for congruence of triangles (ACMMG201)	Conditions for Congruence: SSS and SAS Conditions for Congruence: ASA, AAS and HL Working with Congruent Triangles
Establish properties of quadrilaterals using congruent triangles and angle properties, and solve related numerical problems using reasoning (ACMMG202)	Congruence of Squares, Rectangles and Parallelograms Congruence of Rhombuses, Trapeziums and Kites Applications of Geometric Reasoning
Angle Relationships (MA4-18MG) Identifies and uses angle relationships, including those related to transversals on sets of parallel lines	
Use the language, notation and conventions of geometry	Language, Notation and Conventions of Geometry
Recognise the geometrical properties of angles at a point	Angles around a Point Extra Resources: Angles around a Point Revision: Introduction to Angles
Identify corresponding, alternate and co-interior angles when two straight lines are crossed by a transversal (ACMMG163)	Angles around Parallel Lines Extra Resources: Angles around Parallel Lines

Investigate conditions for two lines to be parallel (ACMMG164)	Parallel Lines
Solve simple numerical problems using reasoning (ACMMG164)	Extension: Geometric Reasoning
Statistics and Probability	
Data Collection and Representation (MA4-19SP) collects, represents and interprets single sets of data, using appropriate statistical displays	
Investigate techniques for collecting data, including census, sampling and observation (ACMSP284)	Introduction to Data Introduction to Data Collection Survey and Simulation Experiment and Observation Revision: Data Sources and Data Types
Explore the practicalities and implications of obtaining data through sampling using a variety of investigative processes (ACMSP206)	Data Collection Methods Surveying Random Sampling
Identify and investigate issues involving numerical data collected from primary and secondary sources (ACMSP169)	Collecting Data: Primary and Secondary Bias in Data Samples and Populations
Construct and compare a range of data displays, including stem-and-leaf plots and dot plots (ACMSP170)	Displaying Data Dot Plots and Column (Bar) Graphs Stem and Leaf Plots Line Graphs Pie Charts and Divided Bar Graphs Histograms Frequency Polygons Pick Your Display Method Extension: Data Representation and Interpretation Extension: Dot Plots Extension: Stem and Leaf Plots Revision: Displays of Data Extra Resources: Column Graphs, Frequency Tables & Line Plots Extra Resources: Dot Plots & Stem and Leaf Plots Extra Resources: Pie Charts & Segmented Bar Charts
Single Variable Data Analysis (MA4-20SP) analyses single sets of data using measures of location, and range	
Calculate mean, median, mode and range for sets of data and	The Mean The Median

interpret these statistics in the context of data (ACMSP171)	The Mode Comparing Measures of Centre The Range Calculating Measures of Centre and Spread Extra Resources: Mean, Median, Mode & Range Revision: Measures of Centre and Spread
Investigate the effect of individual data values, including outliers, on the mean and median (ACMSP207)	Analysing Numerical Data Finding Measures of Centre and Spread in Data Displays Measures of Centre in Grouped Data Outliers
Describe and interpret data displays using mean, median and range (ACMSP172)	Frequency Tables and the Mean Frequency Tables, Median and Mode Frequency Tables with Grouped Data Revision: Displays of Data
Explore the variation of means and proportions of random samples drawn from the same population (ACMSP293)	Clusters and Outliers Samples and Populations
Probability (MA4-21SP) represents probabilities of simple and compound events	
Construct sample spaces for single-step experiments with equally likely outcomes (ACMSP167)	Introduction to Chance Introduction to Probability
Assign probabilities to the outcomes of events and determine probabilities for events (ACMSP168)	Finding Probabilities Experimental Probability
Identify complementary events and use the sum of probabilities to solve problems (ACMSP204)	Complementary Events Calculating Complements
Describe events using language of 'at least', exclusive 'or' (A or B but not both), inclusive 'or' (A or B or both) and 'and' (ACMSP205)	Describing Probabilities Using Descriptions of Probability
Represent events in two-way tables and Venn diagrams and solve related problems (ACMSP292)	Venn Diagrams Two-Way Tables Using Venn Diagrams Using Two-Way Tables