

Nau mai, haere mai! Tālofa lava. Mālō e lelei. Kia orāna. Fakaalofa lahi atu. Mālō ni.

Education Perfect has partnered with the Ministry of Education to provide online Maths resources for Years 9-10 students, including lessons and assessments, to all secondary schools across the motu. As part of that partnership, Education Perfect is also developing NZC-aligned content for Years 7 and 8.

Following the release of the updated Mathematics and Statistics Curriculum, Education Perfect is continuing to develop and release Years 7-10 Maths content aligned to the new NZC. The July 2026 version of this curriculum map reflects our updated course structure, including revised topic and lesson groupings, curriculum-code alignment, and release information for lessons that are not yet complete.

This map is designed to help teachers plan and implement the new NZ Maths curriculum in Years 7-10. It shows how EP's Maths lessons and topic assessments align to the Knowledge and Practices in the NZC, using EP curriculum codes and descriptors to support planning, sequencing and curriculum coverage.

In the EP Topics & Lessons column, teachers will find the relevant EP topics and lessons mapped against each curriculum statement. Where content is still in development, the map includes expected release dates so teachers can plan ahead with greater confidence.

The topic structure in this map is not expected to change. However, some lesson lists may be refined as remaining content is finalised. A final version of the curriculum map will be shared once the full Years 7-10 Maths release is complete.

In columns one and two, you will recognise the Knowledge and Practices columns from the recently released NZC document. In the third (green) column, “**EP's Code and Descriptor**”, our team of Maths experts assigns a code that summarises the Knowledge and Practices in each curriculum row. For example, ‘**M07N-SO01**’ refers to ‘**Maths, Year 07, Number - Structures and Operations, row 1**’ in the new NZC.

In the fourth column, you will find the EP topics and lessons that align to each curriculum code and descriptor. These topics reflect commonly taught groupings

and may allow more flexibility for planning than the broader sub-strands of the NZC. The [blue link](#) takes you directly to the **relevant EP topic** on the platform, where you will find the lessons listed for that topic. You can also find the full course structure, including strands, topics and assessments, in your **Content Library**:

and your Discover view:

Each lesson is matched to the appropriate EP curriculum code and descriptor. These codes will help teachers plan their programmes, track curriculum coverage, and understand how EP content connects to the Knowledge and Practices in the NZC.

Topic assessments are being released alongside each topic. Assessment questions are tagged to EP curriculum codes and descriptors so teachers can use assessment data to identify student strengths, gaps and next steps. These tags also support reporting at student, class, cohort and school level against the new NZC.

Further information and training will be provided as the Years 7-10 Maths release progresses.

We understand that implementing a new curriculum is a challenging time for schools. We believe Education Perfect, through our product, resources and team, can help smooth that transition for teachers and their ākonga. We look forward to working with you for the benefit of all students across the motu.

Mā pango, mā whero, ka oti te mahi.

With black and red together, the work will be done.

Year 7 Number - New NZC content available from August 2026

Number structures and operations			
Knowledge The facts, concepts, principles, and theories to teach.	Practices The skills, strategies, and applications to teach.	EP's Code & Descriptor	EP Topics & Lessons
- In our number system each place value is a power of 10, and this continues infinitely. - Repeated multiplication can be expressed using exponent notation with positive exponents. - An exponent means 'raising to the power of' (e.g. 52 is 5 raised to the power of 2 or 5 to the second power). - Expanded form uses powers of 10 to indicate place value.	- Reading, writing comparing, and ordering whole numbers using powers of 10 (e.g. $10,000 = 10^4$, $1000 < 10^4$) - Representing numbers in expanded form using powers of 10 (e.g. $34,506 = 3 \times 10^4 + 4 \times 10^3 + 5 \times 10^2 + 6$)	M07N-SO01 Represent whole numbers in expanded form using powers of 10, and use this to compare, order and explain the structure of large numbers.	Number Structures - Place Value of Whole Numbers - Powers As Repeated Multiplication
- Whole numbers greater than zero are either prime, composite, or the number 1. - A prime number has exactly two distinct factors: 1 and the number itself. - A composite number has more than two distinct factors. 1 is neither prime nor composite. - The highest common factor (HCF) of two numbers is the greatest number that is a factor of both the numbers. - The least common multiple (LCM) of two numbers is the smallest number that they are both factors of.	- Using exponents and identifying square roots for square numbers up to at least 144 - Using radicals ($\sqrt{\quad}$) to represent square roots - Using divisibility rules to identify numbers that are divisible by 2, 3, 4, 5, 6, 8, 9, and 10 - Identifying prime numbers to 100 - Finding the highest common factor (HCF) of two numbers under 100, and finding the least common multiple (LCM) of two numbers under 10	M07N-SO02 Use factors, multiples, and divisibility rules to identify primes, square numbers and square roots, and to find highest common factors and lowest common multiples.	Number Structures - Squares and Square Roots - Multiples - Factors - Least Common Multiple - Highest Common Factor - Prime and Composite Numbers

Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons
- The number system extends infinitely, including into negative numbers, and can be represented with a number line. - Integers are all the whole numbers, including positive whole numbers, negative whole numbers, and zero. - Every number has an additive inverse, and their sum is zero (e.g. -5 and 5 are additive inverses; $-5 + 5 = 0$ and $5 + -5 = 0$).	- Locating integers on a number line - Ordering whole negative and positive numbers using a number line - Identifying the additive inverse of any number - Representing addition and subtraction of integers using a number line - Using negative numbers to solve problems in a range of contexts, including the measurement of temperature and finance	M07N-SO03 Use number lines and additive inverses to locate, order, add and subtract integers, including in real world contexts.	Number Operations - Locate and Order Integers on a Number Line - Add and Subtract Integers on a Number Line - Add and Subtract Integers in Context
- Rounding, estimation, and using benchmarks support comparing numbers and checking whether findings are reasonable. - Division can result in a remainder expressed as a whole number, fraction, or decimal.	- Using rounding and estimation to predict results and to check the reasonableness of calculations (e.g. $0.73 + 0.8 + 0.999$ must be less than 3 since each are close to but less than 1) - Rounding whole numbers to any specified power of 10, and rounding decimals to the nearest whole number, tenth, or hundredth - Multiplying whole numbers - Dividing whole numbers by one- or two-digit divisors (e.g. $327 \div 5 = 65.4$ or $65 \frac{2}{5}$)	M07N-SO04 Round whole numbers to any specified power of 10 and round decimals to the nearest whole, tenth or hundredth; multiply and divide whole numbers, expressing remainders as whole numbers, fractions, or decimals; use rounding and estimation to predict results and check the reasonableness of calculations.	Number Operations - Multiply Whole Numbers - Divide Whole Numbers - Round Whole Numbers and Decimals - Use Rounding to Predict the Reasonableness of Calculations
- In expressions that have more than one operation, the order of operations is important; operations are done as follows: - operations grouped inside brackets - exponents such as squaring and cubing - multiplication and division, from left to right - addition and subtraction, from left to right.	Evaluating expressions using the order of operations	M07N-SO05 Apply the order of operations to evaluate expressions involving multiple operations.	Number Operations Order of Operations

A mnemonic, such as GEMA: grouped, exponents, multiplicative ($\times$ and $\div$), and additive ($+$ and $-$) can be used to remember the order of operations.			
Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons
- A fraction can describe a proportional relationship between two amounts. - Every fraction can be represented by an infinite set of equivalent fractions that occupy the same point on the number line. - Fractions can be converted to decimals using division, and the result can be: - a terminating decimal (e.g. $5/16 = 0.3125$) - repeating and infinite decimal (e.g. $7/3 = 2.\dot{3}$, $1/7 = 0.\overline{142857}$) - non-repeating and infinite decimal (e.g. $\sqrt{2} = 1.414213\dots$). - In the simplest form of a fraction, the numerator and denominator do not share a common factor. - Scaling by powers of 10 and using number facts supports multiplication with decimals. - Multiplying a whole number by a fraction and finding that fraction of that whole number have the same result. - Percentages are decimal fractions with denominators of 100; they are represented using the percent symbol %.	- Identifying, reading, writing, and representing fractions, decimals, and percentages - Comparing, ordering, and converting between fractions, decimals, and percentages - Finding equivalent fractions and representing fractions in their simplest form - Adding and subtracting fractions, including improper fractions and mixed numbers, and representing the answer in its simplest form - Adding and subtracting decimals - Multiplying and dividing numbers by powers of 10 - Multiplying whole numbers by fractions and representing the answer in its simplest form - Multiplying decimals by whole numbers (e.g. 0.7×5 and 0.7×50, which both relate to knowing $7 \times 5 = 35$) - Dividing fractions by whole numbers and representing the answer in its simplest form - Dividing a whole number by a unit fraction - Finding a fraction of a whole number (e.g. $5/3$ of 186) - Finding a whole amount when given a fraction (e.g. $5/4$ of the set is 85, what is the whole set?) - Finding common percentages of whole numbers - Finding the whole (100) when given a percentage (e.g. 40) - Using proportional reasoning to explore multiplicative relationships between quantities (e.g.	M07N-SO06 Read, write, represent, compare, order, and convert between fractions, decimals and percentages; find equivalent fractions and simplify fractions; add and subtract decimals and fractions (including improper fractions and mixed numbers); multiply and divide by powers of 10; multiply fractions and decimals by whole numbers; divide fractions by whole numbers and whole numbers by unit fractions; find a fraction or common percentage of a whole number; find a whole when given a fraction or percentage; use proportional reasoning to explore multiplicative relationships between quantities.	<u>Proportional Reasoning</u> - Simplify Fractions - Add and Subtract Fractions - Find the Fraction of a Whole Number - Find the Percentage of a Whole Number - Multiply and Divide with Fractions - Calculations with Decimals - Convert Between Fractions, Decimals and Percentages - Find the Whole Given a Fractional or Percentage Amount - Use Proportional Reasoning in Context

	"If there are 3 red for every 7 blue balls, how many balls are there altogether when there are 18 red balls?")		
Financial mathematics			
Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons
- Solutions to problems involving New Zealand currency are rounded to two decimal places. - Cash payments in New Zealand are rounded up or down to the nearest 10 cents.	- Calculating the total cost and change for a transaction involving any amount of money - Applying percentage discounts to whole dollar amounts (e.g. in a 20-off sale)	M07N-FM01 Calculate total cost, change, and percentage discounts, using appropriate rounding for New Zealand currency.	Financial mathematics - Money and Making Change - Find the Total Cost - Find a Percentage Discount

Year 7 Algebra – New NZC content available from September 2026

Equations and relationships			
Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons
- A variable can be used to represent: - an unknown number, often in formulae (e.g. s in s^2) - a quantity that can vary or change (e.g. $y = 3x + 4$; $A = bh$) - a specific unknown value to be solved (e.g. $3a = 18$). - The solution to an equation satisfies that equation. - Equations can be rearranged using inverse operations (e.g. addition and subtraction, multiplication and division). - Solutions to equations can be checked using substitution. - Equations can be solved through trial and error, but this can be an inefficient method.	- Forming and solving one- and two-step linear equations with integer solutions (e.g. $t + 7 = 12$, $5s + 3 = 18$) - Checking the truth of and completing number sentences involving all four operations and including the use of inequalities (e.g. $0.8 \times 12 \leq 8 \times 0.5 + 8$, true or false?) - Using substitution to find the value of an expression or formula (e.g. calculating $w + 12$ given $w = 4$)	M07A-ER01 Use variables to represent unknown or changing quantities; use substitution to evaluate an expression or formula; form and solve one- and two-step equations with integer solutions; verify or complete number sentences involving the four operations, including the use of inequalities.	Algebraic Expressions and Equations - Substitute into Algebraic Expressions - Understanding Equations - Solve One- and Two-Step Equations - Rearrange Formulae
Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons
- Algebra has its own specialised notation to express relationships and operations concisely, including: $3b$ in place of $b + b + b$, $3 \times b$, and $b \times 3$ b in place of $1b$ ab in place of $a \times b$ or $b \times a$ (in alphabetical order) a^2 in place of $a \times a$, a^3 in place of $a \times a \times a$ a/b in place of $a \div b$ and $a \times 1/b$ a in place of $a1$ 1 in place of a/a when $a \neq 0$.	- Rearranging known formulae using one or two steps (e.g. making w the subject of $A = lw$) - Simplifying expressions involving any of the four operations by collecting like terms (e.g. $3a + a + a = 5a$, $3b - 2b = b$)	M07A-ER02 Use algebraic notation to express relationships and operations concisely; simplify algebraic expressions involving any of the four operations; rearrange formulae using one or two steps.	Algebraic Expressions and Equations - Add and Subtract Like Terms - Multiply Algebraic Expressions - Divide Algebraic Expressions

• A coordinate plane extends to 4 quadrants that meet at the origin (0, 0). • Linear patterns have a constant increase or decrease, can be described by the rule $t = a \times n + d$, and can be graphed as a straight line on a coordinate plane.	• Identifying and plotting points in the four quadrants of the coordinate plane, using ordered pairs and values from a table • Using tables, graphs in the coordinate plane, and diagrams to recognise the relationship between the ordinal position and its corresponding element in a linear pattern, develop a rule for the pattern in words, and make conjectures about further elements in the pattern • Identifying the constant increase or decrease in a linear pattern, using variables and algebraic notation to represent the rule in an equation, and using the equation to make conjectures	M07A-ER03 Plot points in the four quadrants of the coordinate plane; recognise linear patterns in diagrams, tables and graphs and develop a rule for the pattern in words; identify the constant increase or decrease in a linear pattern and represent the rule in an equation; make conjectures about further elements in a linear pattern.	<u>Linear Relationships</u> • Plot Points on the Coordinate Plane • Describe and Continue Linear Patterns • Plot a Linear Pattern from a Table • Gradient and Equation of a Linear Pattern • Linear Patterns in Context
--	--	--	--

Year 7 Measurement – New NZC content available from September 2026

Measuring			
Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons
	Selecting and using an appropriate base measure (e.g. metre, gram, litre) within the metric system, along with a prefix (e.g. kilo-, centi-) to show the size of units	M07M-ME01 Select and use appropriate metric base units (metre, gram, litre) and prefixes such as kilo and centi to represent measurement size.	<u>Units of Measurement</u> - The Metric System - Metric Units of Length, Weight and Capacity - Solve Problems involving Metric Units
- Area is a two-dimensional measure, so its units are squared (e.g. cm^2). - Volume is a three-dimensional measure, so its units are cubed (e.g. cm^3). - Formulae represent the relationship between measurements and can be used to determine unknown measurements from known measurements. - Shapes can be decomposed or recomposed to help find their measurements (e.g. their perimeters, areas, and volumes). - Measurement formulae for perimeter are: - for a square: $P = 4l$ - for a rectangle: $P = 2(l + w)$. - Measurement formulae for area are: - for a triangle: $A = \frac{1}{2}bh$ or $A = bh/2$ - for a square: $A = l^2$ - for a rectangle: $A = lw$ or $A = bh$. - Measurement formulae for volume are:	- Using formulae to find unknown measurements related to perimeter (e.g. the length of the unknown sides of a square given its perimeter, the length of an unknown side in a composite shape given its perimeter) - Using formulae to find unknown measurements related to area (e.g. the base of a triangle given its area and height, the area of a figure composed of a triangle and rectangle, given side lengths) - Using formulae to find unknown measurements related to volume (e.g. the dimensions of a cube given its volume, the volume of a rectangular prism given side lengths)	M07M-ME02 Find unknown values, including with appropriate units, in problems involving: perimeter including in composite shapes; area in rectangles, triangles and composite shapes; volume in rectangular prisms.	<u>Perimeter, Area and Volume</u> - Perimeter and Area of Squares and Rectangles - Area of Triangles - Perimeter and Area of Composite Shapes - Volume of Rectangular Prisms

- for a cube: $V = l^3$ - for a rectangular prism: $V = lwh$.			
Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons
Duration questions can involve fractions of time and converting between units of time.	Reading, interpreting, and using timetables and charts that present information about duration	M07M-ME03 Read, interpret, and use timetables and charts involving duration, including the use of fractions of time.	<u>Units of Measurement</u> - Units of Time - Solve Problems involving Units of Time - Read and Interpret Timetables

Year 7 Geometry – New NZC content available: from October 2026

Shapes			
Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons
- Triangles can be categorised by their angles. - An acute triangle has three acute angles. - A right triangle has one right angle. - An obtuse triangle has one obtuse angle. - Triangles can also be categorised by their sides. - An equilateral triangle has three equal-length sides. - An isosceles triangle has at least two equal-length sides. - A scalene triangle has different measures for each side length. - All angles in an equilateral triangle are 60°. - The base angles (opposite the equal sides) of an isosceles triangle are equal.	Classifying triangles by both their angle and side properties	M07G-SH01 Classify triangles by their angle properties (acute, right, obtuse) and side properties (equilateral, isosceles, scalene), recognising key features such as equal sides, equal angles, and special angle measures.	Triangles and Angles - Identify Types of Angles - Identify Types of Triangles - Angles in a Triangle - Angles on a Line and around a Point - Angles on Parallel Lines - Multi-step Angle Rule Problems
Spatial Reasoning			
Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons
- The sum of the exterior angles of a polygon is 360°. - In a regular polygon, all exterior angles are the same; an exterior angle can be found by subtracting the interior angle from 180° or by dividing 360° by the number of sides. - The interior angle sum of a triangle is 180°; for a quadrilateral, it is 360°. - The interior angle sum of any polygon can be found using the formula $180(n - 2)^\circ$, where n represents the total number of sides.	- Transforming 2D shapes in the coordinate plane by a single translation, reflection across a given mirror line, or a rotation about a given point by a multiple of 90 degrees - Identifying the 2D shapes that compose 3D shapes - Drawing nets for prisms and pyramids - Reasoning about unknown angles in situations involving perpendicular lines, parallel lines, and transversals - Solving for an unknown angle in a diagram by	M07G-SR01 Transform shapes in the coordinate plane by a single translation, reflection or rotation; draws nets for prisms and pyramids; reason about unknown angles around a point, on a line, in a triangle, and involving parallel lines and transversals.	Transformations - Reflection - Rotation - Translation Representing 3D Shapes - Identify 3D Shapes - Nets of Prisms - Nets of Pyramids

	setting up and solving a multi-step equation based on supplementary, complementary, vertical, and adjacent angle relationships		
Pathways			
	Interpreting and communicating the location of positions and pathways using coordinates, angle measures, and the eight main and halfway compass points (e.g. NE, which is 45° E from N)	M07G-PA01 Interpret and communicate positions and pathways using coordinates, angle measures, and the eight main and halfway compass points.	<u>Positions and Pathways</u> - Compass Directions - Coordinate Positions - Navigate Using a Map

Year 7 Statistics – New NZC content available from September 2026

Developing knowledge from data			
Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons
- A variable is an attribute or measurement of the people or objects being studied. - A categorical variable classifies objects or individuals into groups. - Discrete numerical variables are counted. - Continuous numerical variables are measured. - The response to a statistical question can be summarised by a measure of central tendency. - The mean is the average of numerical data. - The median is the middle value for sorted numerical data. - The mode is the data value with the highest frequency for categorical data or discrete numerical data. - The response to a statistical question can be summarised by the range as a measure of spread. The range for numerical data is the highest value minus the lowest value.	- Planning and collecting data in order to respond to a statistical question (e.g. Are our feet the same length?) - Calculating the mean, median, and mode for numerical data - Calculating the range for numerical data	M07S-KD01 Plan and collect data to answer a statistical question, including an understanding of variable types; calculate mean, median and mode as measures of centre, and range as a measure of spread.	Data Visualisation and Analysis - Statistical Data - Mean and Mode - Median - Range and Outliers
Visualisation of data			
Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons
- Categorical data can be visualised through dot plots and bar graphs. - Paired categorical variables can be visualised through a stacked bar graph or a clustered bar graph. - Bivariate time-series data can be visualised through a time-series graph.	- For a given set of data, choosing and constructing an appropriate data visualisation according to the data type (e.g. a dot plot, bar graph, time-series graph) - Noticing and explaining outliers in a given set of data	M07S-VD01 Choose and construct an appropriate data display (dot plot, bar graph, time-series graph) to visualise a set of data; identify and explain outliers, including their effect on the	Data Visualisation and Analysis - Dot Plots - Bar Graphs - Visualise and Describe Data

- A good data visualisation should allow viewers to discern the variable or variables and who the data was collected from, and then, depending on the type of visualisation, additional information such as units for numerical variables, frequency, proportions, patterns, and trends. - Outliers are individual data points that are very much bigger or smaller than most of the data points. - Outliers skew the mean value for a data set towards themselves, but not the median value. - Outliers are not necessarily an error, as there are some events that occur rarely in many situations.		mean.	
Interpretation of data			
Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons
- The response to a statistical question includes findings that are summarised and interpreted in context and using evidence. - The tapering sides of a data visualisation are known as tails and may taper at the same rate, producing a symmetrical shape, or an uneven rate, producing a skewed shape. - In positively skewed data, the right-tail tapers more slowly than the left tail. - In negatively skewed data, the left tail tapers more slowly than the right tail. - Interpreting a data visualisation includes describing its variables and their units, the context for the data, and the visualisation's key features: - its shape (e.g. the number of peaks, and whether the shape is symmetrical or skewed) - its central tendency (where the middle of the	- Responding to statistical questions by calculating an appropriate measure of central tendency and range for a variety of data tables and data visualisations - Interpreting data visualisations, including those from contemporary media - Identifying when a data visualisation cannot be interpreted accurately due to missing information - Identifying outliers by eye and taking them into account when using range as a measure of spread	M07S-ID01 Interpret data visualisations including those from the media and with an understanding of missing or misleading information; respond to statistical questions by describing frequency, shape and outliers, and by calculating and interpreting measures of centre and spread.	<u>Statistical Investigations</u> - Statistical Investigations - Investigation: Problem and Plan - Investigation: Data - Investigation: Analysis and Conclusion

- data lies, as indicated visually by the centre of the visualisation and numerically by the median) - its spread (how spread the data is from the minimum to the maximum value, and the numerical value of the range) - other features depending on the type of data and the data visualisation (e.g. the least and most frequent categories in categorical data, trends for time-series data). - A graph that is missing parts (e.g. title, axis labels, axis scales) or has errors may have been made to be misleading or to hide information.			
--	--	--	--

Year 7 Probability – New NZC content available from October 2026

Experimental probability			
Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons
- Some chance-based situations, such as rolling a weighted die, can only be explored through probability experiments. - Results from sets of repeated trials for the same experiment may vary. - The Law of Large Numbers states that as the number of trials in a chance experiment increases, the experimental probability will approach the experiment's theoretical probability. - The estimated probability of an event from an experiment is the number of times the event happens divided by the total number of trials in the experiment (i.e. the relative frequency for that event).	- Carrying out a chance experiment and calculating the experimental probability of each outcome - Comparing experimental probability (using at least 30 trials) to theoretical probability, and explaining why they differ and how increasing the number of trials reduces this difference - Carrying out chance experiments of at least 100 trials and comparing the experimental probability of each individual outcome to its theoretical probability, in order to demonstrate the Law of Large Numbers	M07P-EP01 Carry out chance experiments of varying sizes (at least 30 trials through to at least 100 trials); calculate and compare experimental and theoretical probabilities in order to demonstrate the Law of Large Numbers.	Probability - The Language of Probability - Experimental vs Theoretical Probability - Probability Experiments - Sample Size and Number of Trials
Theoretical probability			
- Lists, tables, and tree diagrams are useful systematic methods for generating all possible outcomes. - If all possible outcomes are assumed to be equally likely, the probability of an event is $(\text{number of ways the event can happen}) / (\text{total number})$ - Probabilities can be expressed as a fraction or decimal between 0 and 1, or as a percentage	- Calculating probabilities for events as decimals, fractions, and percentages - Comparing the likelihood of different events - Calculating probabilities for complementary events	M07P-TP01 Use systematic methods (lists, tables, trees) to generate all possible outcomes; calculate and compare probabilities of events as decimals, fractions and percentages, including complementary	Probability - Sample Space - Find the Probability of an Event

between 0 and 100. • An event is a subset of the sample space and thus can be a single outcome or a combination of outcomes. • The probability of an event and its complement add to 1.		events.	
--	--	---------	--

Year 8 Number - New NZC content available from August 2026

Number structures and operations			
Knowledge The facts, concepts, principles, and theories to teach.	Practices The skills, strategies, and applications to teach.	EP's Code & Descriptor	EP Topics & Lessons
- In our number system, each place value is a power of 10, and this continues infinitely to the left and right. - Repeated division can be expressed using exponent notation with negative exponents. - Decimals can be represented using negative exponents (i.e. negative powers of ten).	- Reading, writing comparing, and ordering whole numbers and decimals using positive and negative powers of 10 - Representing whole numbers and decimals in expanded form using powers of 10 (e.g. $3.61 = 3 \times 100 + 6 \times 10 - 1 + 1 \times 10 - 2$) - Representing negative powers of 10 as a fraction and a decimal, and vice-versa (e.g. $0.01 = 1/100 = 10^{-2}$)	M08N-SO01 Represent whole numbers in expanded form using positive and negative powers of 10, and use this to compare, order, and explain the structure of whole numbers and decimals.	Number Structures - Negative Powers of 10 as Fractions and Decimals - Place Value of Whole and Decimal Numbers - Factors and Number Structures - Least Common Multiple and Highest Common Factor
Each composite number can be represented as a unique product of prime factors and summarised with exponent notation.	- Using exponents and identifying cube roots for cube numbers up to at least 125 - Using radicals ($\sqrt{\quad}$ and $\sqrt[3]{\quad}$) to represent square and cube roots - Evaluating square and cube roots for perfect squares and cubes and using a calculator to approximate them for other numbers - Representing composite numbers as products of their prime factors, using exponents to summarise repeated factors (e.g. $36 = 2 \times 2 \times 3 \times 3 \times 3 = 2^2 \times 3^3$)	M08N-SO02 Represent composite numbers as a product of prime factors using powers; evaluate square and cube roots for perfect squares and cubes, and use a calculator to approximate them for other numbers.	Number Structures - Square and Cube Numbers and their Roots - Prime and Composite Numbers - Prime Factorisation

- The number system extends infinitely, including into negative numbers, and can be represented with a number line. - Integers are all the whole numbers, including positive whole numbers, negative whole numbers, and zero. - Every number has an additive inverse, and their sum is zero (e.g. -5 and 5 are additive inverses; $-5 + 5 = 0$ and $5 + -5 = 0$).	- Locating negative and positive numbers on a number line - Comparing and ordering negative and positive numbers using a number line (e.g. $-3.4 < -3$) - Evaluating expressions involving negative numbers, addition, and subtraction (e.g. $3 + -7$)	M08N-SO03 Use number lines to locate, order, add and subtract positive and negative numbers, including in real world contexts.	<u>Number Operations</u> - Locate and Compare Positive and Negative Numbers on a Number Line - Add and Subtract Positive and Negative Numbers
Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons
- Rounding, estimation, and using benchmarks support comparing numbers and checking whether findings are reasonable. - Division can result in a remainder expressed as a whole number, fraction, or decimal.	- Using rounding, estimation, and benchmarks to predict results and to check the reasonableness of calculations (e.g. 14.7×5 must be between $14 \times 5 = 70$ and $15 \times 5 = 75$) - Rounding whole numbers to any specified power of 10, and rounding decimals to the nearest whole number, tenth, hundredth, or thousandth - Multiplying and dividing whole numbers (e.g. $327 \div 15 = 21.8$ or $21 \frac{4}{5}$)	M08N-SO04 Round whole numbers to any specified power of 10 and round decimals to the nearest whole, tenth, hundredth or thousandth; multiply and divide whole numbers, expressing remainders as whole numbers, fractions, or decimals; use rounding, estimation and benchmarks to predict results and check the reasonableness of calculations.	<u>Number Operations</u> - Multiply and Divide Whole Numbers - Round Whole Numbers and Decimals - Use Rounding to Predict the Reasonableness of Calculations
- In expressions that have more than one operation, the order of operations is important; operations are done as follows: - operations grouped inside brackets - exponents such as squaring and cubing - multiplication and division, from left to right - addition and subtraction, from left to right. - A mnemonic, such as GEMA: grouped, exponents,	Evaluating expressions with integers, using the order of operations	M08N-SO05 Apply the order of operations to evaluate expressions involving integers and multiple operations.	<u>Number Operations</u> Order of Operations including Addition and Subtraction of Integers

multiplicative ($\times$ and $\div$), and additive (+ and $-$) can be used to remember the order of operations.			
---	--	--	--

Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons
- The product of two fractions can be found by multiplying the numerators and multiplying the denominators. - Percentages can be used to proportionally increase or decrease a quantity. - Ratios can be used to describe proportional relationships and unequal division of a whole. - Ratios, fractions, and percentages can all represent proportional relationships between two quantities.	- Identifying, reading, writing, and representing fractions, decimals, and percentages - Comparing, ordering, and converting between fractions, decimals, and percentages - Multiplying whole numbers by fractions, including by improper fractions, by mixed numbers, and by first converting to an improper fraction - Multiplying fractions and representing the answer in its simplest form - Multiplying and dividing numbers by powers of 10 - Multiplying positive decimals (e.g. 2.3×45) - Finding a fraction of a whole number, including when the result is a mixed number or improper fraction (e.g. for $\frac{2}{5}$ of 42, $\frac{2}{5} \times 42 = \frac{84}{5} = 16 \frac{4}{5}$) - Finding a whole amount when given a fraction, including when the whole set is a mixed number or improper fraction (e.g. if 8 is $\frac{3}{5}$ of a set, $8 \times \frac{5}{3} = 13 \frac{1}{3}$) - Finding percentages of whole numbers - Finding the whole (100) when given a percentage (e.g. 3% is 27) - Identifying percentage equivalence in calculations (e.g. 45 of 20 is equal to 20 of 45) - Dividing a quantity into two parts, given the part:part or part:whole ratio - Expressing the division of quantity into two parts as a ratio	M08N-SO06 Read, write, represent, compare, order, and convert between fractions, decimals and percentages; multiply two fractions and a fraction by a whole number (including improper fractions and mixed numbers); multiply and divide by powers of 10; multiply a decimal by a whole number; find a fraction or percentage of a whole number; find a whole when given a fraction or percentage; express the division of a quantity as a ratio, and divide a quantity using a ratio.	Proportional Reasoning - Add, Subtract and Simplify Fractions - Multiply and Divide with Fractions - Find the Fraction of a Whole Number - Find the Percentage of a Whole Number - Convert Between Fractions, Decimals and Percentages - Find the Whole Given a Fractional or Percentage Amount - Express the Division of a Quantity as a Ratio - Divide a Quantity into a Given Ratio - Use Proportional Reasoning in Context

Financial mathematics			
Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons
- Solutions to problems involving New Zealand currency are rounded to two decimal places. - Cash payments in New Zealand are rounded up or down to the nearest 10 cents.	- Creating and comparing weekly, monthly, and yearly finance plans (e.g. for saving plans, phone plans, budgets, and 'buy now, pay later' services) - Applying percentage discounts (e.g. a 35 discount on \$180 will give a new price of $\\$180 - (0.35 \times \\$180) = \\$117$)	M08N-FM01 Create and compare financial plans such as savings, budgets, and payment options; apply percentage discounts to dollar amounts using appropriate rounding for New Zealand currency.	<u>Financial Mathematics</u> - Shopping and Change - Create a Budget - Compare Payment Options

Year 8 Algebra – New NZC content available from October 2026

Equations and relationships			
Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons
- A variable can be used to represent: - an unknown number, often in formulae (e.g. s in s^2) - a quantity that can vary or change (e.g. $y = 3x + 4$; $A = bh$) - a specific unknown value to be solved (e.g. $3a = 18$). - The solution to an equation satisfies that equation. - Equations can be rearranged using inverse operations (e.g. addition and subtraction, multiplication and division). - Solutions to equations can be checked using substitution. - Equations can be solved through trial and error, but this can be an inefficient method.	- Forming and solving linear equations with rational solutions (e.g. $t + 7 = 6.5$, $5s + 9 = -18$) - Forming and solving linear inequalities and representing the solution on a number line (e.g. $t - 3 \geq -5$) - Using substitution to find the value of an expression or formula (e.g. calculating $w + 12$ given $w = 4$)	M08A-ER01 Use substitution to evaluate an expression or formula; form and solve linear equations with rational solutions; form and solve linear inequalities, representing the solution on a number line.	Algebraic Expressions and Equations - Substitute into Algebraic Expressions - Solve One- and Two-Step Equations - Rearrange Formulae - Inequalities Using the Number Line
Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons
- The distributive, commutative, and associative laws are true for all real numbers. - Algebraic expressions can be presented in many different ways including fully factorised, partially factorised, and fully expanded forms.	- Rearranging known formulae using one or two steps - Simplifying algebraic expressions involving sums, products, differences, and single brackets, and collecting like terms (e.g. $2(x + 3) + 1 = 2x + 6 + 1 = 2x + 7$) - Factorising simple algebraic expressions (e.g. $5x - 35 = 5(x - 7)$)	M08A-ER02 Simplify algebraic expressions involving any of the four operations; expand and factorise single brackets; rearrange formulae using one or two steps.	Algebraic Expressions and Equations - Add and Subtract Like Terms - Multiply and Divide Algebraic Expressions - Expand and Factorise a Single Bracket

• A coordinate plane extends to 4 quadrants that meet at the origin (0, 0). • Linear patterns have a constant increase or decrease, can be described by the rule $t = a \times n + d$, and can be graphed as a straight line on a coordinate plane.	• Identifying and plotting points in the four quadrants of the coordinate plane, using ordered pairs and values from a table • Using tables, graphs in the coordinate plane, and diagrams to recognise the relationship between the ordinal position and its corresponding element in a linear pattern, develop a rule for the pattern in words, and make conjectures about further elements in the pattern • Identifying the constant increase or decrease in a linear pattern, using variables and algebraic notation to represent the rule in an equation, and using the equation to make conjectures • Investigating the patterns of triangular numbers, square numbers, and cube numbers, extending the patterns, creating tables of values, and plotting the values on the coordinate plane	M08A-ER03 Plot points in the four quadrants of the coordinate plane; recognise linear patterns in diagrams, tables and graphs and develop a rule for the pattern in words; identify the constant increase or decrease in a linear pattern and represent the rule in an equation; make conjectures about further elements in a linear pattern; investigate the patterns of triangular, square and cube numbers.	<u>Linear Relationships</u> • Plot a Linear Pattern from a Table • Identify Features of a Linear Graph • Equation of a Linear Pattern • Linear Patterns in Context • Investigate Triangular, Square and Cube Number Patterns
--	---	--	--

Year 8 Measurement - New NZC content available from September 2026

Measuring			
Knowledge	Practices	EP's Code & Descriptor	EP Lessons
Liquids can be measured by capacity and by volume; there are standard conversions between measurements, in particular $1 \text{ mL} = 1 \text{ cm}^3$, $1 \text{ L} = 1000 \text{ cm}^3$, and $1 \text{ m}^3 = 1000 \text{ L}$.	- Estimating and measuring length, area, volume, capacity, mass (weight), temperature, time, and angle, using appropriate units - Converting between metric units of area (mm^2, cm^2, m^2, and km^2) and volume (mm^3, cm^3 and m^3) - Converting between different volume units (cm^3, m^3, mL, L)	MO8M-ME01 Estimate and measure length, area, volume, capacity, mass, temperature, time, and angle using appropriate units; convert between metric units including for area, and for volume and capacity.	Units of Measurement - Metric Unit Conversions - Estimate and Measure Using Appropriate Units - Metric Units of Area - Metric Units of Volume
- The area of a parallelogram is given by $A = bh$ - The area of a trapezium is given by $A = 1/2(a + b)h$ or $A = (a + b)h/2$. - The volume of a triangular prism is given by $V = 1/2bhl$	- Calculating the area of a parallelogram and a trapezium - Calculating the area of a shape, given some lengths and its perimeter, and vice versa - Calculating lengths of quadrilaterals, given their area and other sufficient information - Calculating the volume of triangular prisms - Calculating the volume of composite figures made up of cubes, rectangular prisms, and/or triangular prisms	MO8M-ME02 Calculate the area of parallelograms and trapeziums; find unknown values that relate length/perimeter with area; calculate the volume of triangular prisms and of composite figures.	Perimeter, Area and Volume - Perimeter and Area of Squares, Rectangles and Triangles - Area of Parallelograms and Trapeziums - Area of Composite Shapes - Volume of Prisms - Volume of Composite Solids
Duration questions can involve fractions of time and converting between units of time.	- Reading, interpreting, and using timetables, charts and results that present information about duration. - Converting times to a given unit (e.g. hours and minutes to minutes)	MO8M-ME03 Read, interpret, and use timetables and charts involving duration; solve problems involving time that include the use of fractions of time and unit conversions.	Units of Measurement - Timetables and Charts - Solve Problems involving Units of Time

Year 8 Geometry – New NZC content available from October 2026

Shapes			
Knowledge	Practices	EP's Code & Descriptor	EP Lessons
- The radius is the distance from the outside of a circle to the centre. - The diameter is the length of a line through the centre of a circle that touches opposite points on the edge of the circle. - The circumference is the distance around a circle.	Identifying and describing the parts of a circle: the radius, diameter, and circumference	M08G-SH01 Identify and describe radius, diameter and circumference as key parts of a circle.	Circles and Angles Parts of a Circle
Spatial reasoning			
- The sum of the exterior angles of a polygon is 360°. - In a regular polygon, all exterior angles are the same; an exterior angle can be found by subtracting the interior angle from 180° or by dividing 360° by the number of sides. - The interior angle sum of a triangle is 180°; for a quadrilateral, it is 360°. - The interior angle sum of any polygon can be found using the formula $180(n - 2)^\circ$, where n represents the total number of sides.	- Transforming 2D shapes on the coordinate plane, including composite shapes, by a combination of translations, reflections, rotations, and scaling by any factor - Proving that the interior angle sum of a triangle is 180°, and generalising a rule for the interior angle sum and exterior angles for any polygon - Reasoning about unknown angles in situations involving internal and external angles of polygons	M08G-SR01 Transform composite 2D shapes in the coordinate plane by a combination of translation, reflection, rotation and scaling; prove that the interior angle sum of a triangle is 180° and generalise a rule for the interior angle sum and exterior angles for any polygon; reason about unknown angles in situations involving polygons.	Transformations - Identify Types of Quadrilaterals - Parts of a Circle - Angles on a Line, around a Point and in a Triangle - Angles on Parallel Lines - Interior Angles of a Polygon - Exterior Angles of a Polygon - Multi-Step Angle Rule Problems Circles and Angles - Identify Types of Quadrilaterals - Angles on a Line, around a Point and in a Triangle - Angles on Parallel Lines

			• Interior Angles of a Polygon • Exterior Angles of a Polygon • Multi-Step Angle Rule Problems
Pathways			
Knowledge	Practices	EP's Code & Descriptor	EP Lessons
• A map's scale is the ratio between a distance on the map and the corresponding distance in the physical world.	• Using map scales, compass points, distance, and turn to interpret and communicate positions and pathways in coordinate systems and grid reference systems	M08G-PA01 Use map scales, compass points, distance, and turn to interpret and communicate positions and pathways in coordinate systems and grid reference systems.	<u>Positions and Pathways</u> • Map Position and Direction • Find Distance Using Map Scales • Navigate Using a Map

Year 8 Statistics – New NZC content available from October 2026

Developing knowledge from data			
Knowledge	Practices	EP's Code & Descriptor	EP Lessons
- A variable is an attribute or measurement of the people or objects being studied. - A categorical variable classifies objects or individuals into groups. - Discrete numerical variables are counted. - Continuous numerical variables are measured. - The response to a statistical question can be summarised by a measure of central tendency. - The mean is the average of numerical data. - The median is the middle value for sorted numerical data. - The mode is the data value with the highest frequency for categorical data or discrete numerical data. - The response to a statistical question can be summarised by the range as a measure of spread. The range for numerical data is the highest value minus the lowest value.	- Planning and collecting data in order to respond to a statistical question (e.g. Are our feet the same length?) - Calculating the mean, median, and mode for numerical data - Calculating the range for numerical data	M08S-KD01 Plan and collect data to answer a statistical question, including an understanding of variable types; calculate mean, median and mode as measures of centre, and range as a measure of spread.	Data Visualisation and Analysis - Statistical Data – Variable Types - Centre: Mean, Median and Mode - Spread: Range and Outliers
Visualisation of data			
Knowledge	Practices	EP's Code & Descriptor	EP Lessons
- Categorical data can be visualised through dot plots and bar graphs. - Paired categorical variables can be visualised through a stacked bar graph or a clustered bar graph. - Bivariate time-series data can be visualised through a time-series graph.	- For a given set of data, choosing and constructing an appropriate data visualisation according to the data type (e.g. a dot plot, bar graph, time-series graph) - Noticing and explaining outliers in a given set of data	M08S-VD01 Choose and construct an appropriate data display (dot plot, bar graph, time-series graph) to visualise a set of data; identify and explain outliers, including their effect on the	Data Visualisation and Analysis - Dot Plots - Bar Graphs - Time-Series Graphs - Shape - Visualise and Describe Data

• A good data visualisation should allow viewers to discern the variable or variables and who the data was collected from, and then, depending on the type of visualisation, additional information such as units for numerical variables, frequency, proportions, patterns, and trends. • Outliers are individual data points that are very much bigger or smaller than most of the data points. • Outliers skew the mean value for a data set towards themselves, but not the median value. • Outliers are not necessarily an error, as there are some events that occur rarely in many situations.		mean.	
Interpretation of data			
Knowledge	Practices	EP's Code & Descriptor	EP Lessons
• The response to a statistical question includes findings that are summarised and interpreted in context and using evidence. • The tapering sides of a data visualisation are known as tails and may taper at the same rate, producing a symmetrical shape, or an uneven rate, producing a skewed shape. ○ In positively skewed data, the right-tail tapers more slowly than the left tail. ○ In negatively skewed data, the left tail tapers more slowly than the right tail. • Interpreting a data visualisation includes describing its variables and their units, the context for the data, and the visualisation's key features: ○ its shape (e.g. the number of peaks, and whether the shape is symmetrical or skewed) ○ its central tendency (where the middle of the	• Responding to statistical questions by calculating an appropriate measure of central tendency and range for a variety of data tables and data visualisations • Interpreting data visualisations, including those from contemporary media • Identifying when a data visualisation cannot be interpreted accurately due to missing information • Identifying outliers by eye and taking them into account when using range as a measure of spread	M08S-ID01 Interpret data visualisations including those from the media and with an understanding of missing or misleading information; respond to statistical questions by describing frequency, shape and outliers, and by calculating and interpreting measures of centre and spread.	<u>Statistical Investigation</u> • Statistical Investigations • Investigation: Problem and Plan • Investigation: Data • Investigation: Analysis and Conclusion

data lies, as indicated visually by the centre of the visualisation and numerically by the median) ○ its spread (how spread the data is from the minimum to the maximum value, and the numerical value of the range) ○ other features depending on the type of data and the data visualisation (e.g. the least and most frequent categories in categorical data, trends for time-series data). • A graph that is missing parts (e.g. title, axis labels, axis scales) or has errors may have been made to be misleading or to hide information.			
---	--	--	--

Year 8 Probability - New NZC content available from October 2026

Experimental probability			
Knowledge	Practices	EP's Code & Descriptor	EP Lessons
- Some chance-based situations, such as rolling a weighted die, can only be explored through probability experiments. - Results from sets of repeated trials for the same experiment may vary. - The Law of Large Numbers states that as the number of trials in a chance experiment increases, the experimental probability will approach the experiment's theoretical probability. - The estimated probability of an event from an experiment is the number of times the event happens divided by the total number of trials in the experiment (i.e. the relative frequency for that event).	- Carrying out a chance experiment and calculating the experimental probability of each outcome - Comparing experimental probability (using at least 30 trials) to theoretical probability, and explaining why they differ and how increasing the number of trials reduces this difference - Carrying out chance experiments of at least 100 trials and comparing the experimental probability of each individual outcome to its theoretical probability, in order to demonstrate the Law of Large Numbers	M08P-EP01 Carry out chance experiments of varying sizes (at least 30 trials through to at least 100 trials); calculate and compare experimental and theoretical probabilities in order to demonstrate the Law of Large Numbers.	Probability - The Language of Probability - Experimental vs Theoretical Probability - Sample Space - Find the Probability of an Event - Probability Experiments - Sample Size and Number of Trials
Theoretical probability			
- Lists, tables, and tree diagrams are useful systematic methods for generating all possible outcomes. - If all possible outcomes are assumed to be equally likely, the probability of an event is $(\text{number of ways the event can happen}) / (\text{total number of outcomes})$. - Probabilities can be expressed as a fraction or decimal between 0 and 1, or as a percentage between 0% and 100%. - An event is a subset of the sample space and thus can be a single outcome or a combination of outcomes.	- Calculating probabilities for events as decimals, fractions, and percentages - Comparing the likelihood of different events - Calculating probabilities for complementary events	M08P-TP01 Use systematic methods (lists, tables, trees) to generate all possible outcomes; calculate and compare probabilities of events as decimals, fractions and percentages, including complementary events.	

The probability of an event and its complement add to 1.			
--	--	--	--

Year 9 Number – New NZC content available now

Number structures and operations			
Knowledge The facts, concepts, principles, and theories to teach.	Practices The skills, strategies, and applications to teach.	EP's Code & Descriptor	EP Topics & Lessons
- A number written in scientific notation has the form $a \times 10^k$, where $1 \leq a < 10$ and k is an integer. - Repeated division can be summarised using exponent notation with a negative exponent. - There are an infinite number of rational numbers between any two numbers; these can be represented by terminating decimals, recurring decimals, and fractions. - Multiplying a fraction by an equivalent form of 1, such as $3/3$, results in an equivalent fraction. - When giving a fraction as an answer, there should be a positive or negative integer in the numerator and a positive integer in the denominator. - Numbers, including fractions, decimals, and percentages, can be represented using number lines.	- Identifying, reading, writing, representing, comparing, ordering, and converting between fractions, decimals, and percentages - Recording, comparing, and ordering whole and decimal numbers using scientific notation (e.g. 3.14×10^3) - Finding equivalent fractions, simplifying fractions, and converting between improper fractions and mixed numbers - Expressing remainders from division as fractions or decimals, depending on the context - Identifying powers of 2 through to 210 - Converting between negative powers and unit fractions (e.g. $3 - 2 = 1/9$) - Approximately locating roots on the number line with reference to the closest perfect square (e.g. $\sqrt{48}$ is between $\sqrt{36} = 6$ and $\sqrt{49} = 7$, but closer to 7)	M09N-SO01 Read, write, represent, compare, order, and convert between fractions, decimals and percentages; find equivalent fractions and simplify fractions, including conversion between mixed numbers and improper fractions; express remainders from division as fractions or decimals; convert between negative powers and unit fractions; represent and compare whole and decimal numbers using scientific notation; identify powers of 2 through 210; approximate the location of roots on the number line.	Number Structures - Scientific Notation - Fractions, Mixed Numbers and Improper Fractions - Relationship Between Fractions, Decimals and Percentages - Negative Exponents - Powers of 2 - Square Roots on the Number Line

Rounding and estimation support efficiently predicting results and checking the reasonableness of calculations.	- Using rounding and estimation to predict results and to check the reasonableness of calculations - Rounding to the degree of precision required for the context	M09N-SO02 Round to the degree of precision required for the context; use rounding and estimation to predict results and check the reasonableness of calculations.	Number Operations Rounding to a Precision Required for the Context
Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons
- The order of operations is important when evaluating or forming expressions. Operations are done as follows: - grouped operations (e.g. expressions under a square root, involving the numerator of a fraction, or inside brackets) - exponents or powers - multiplication and division, from left to right - addition and subtraction, from left to right. - A mnemonic, such as GEMA—Grouped (e.g. $\sqrt{3^2 + 4^2}$), Exponents (e.g. $(-2)^3$), Multiplicative ($\times$ and $\div$), Additive ($+$ and $-$)—can be used to remember the order of operations. - Every non-zero number has a multiplicative inverse (reciprocal), and their product is 1 (e.g. 5 and $1/5$ are reciprocals, so $5 \times 1/5 = 1/5 \times 5 = 1$).	- Generalising about exponents of 0 and 1 - Adding, subtracting, multiplying, and dividing integers - Generalising the rule for dividing by a fraction by starting with dividing a whole number by a fraction - Adding, subtracting, multiplying, and dividing fractions and decimals - Connecting multiplying or dividing decimals with multiplying or dividing fractions (e.g. $0.3 \times 0.15 = 3/10 \times 15/100$). - Checking for equivalence in expressions involving negative numbers (e.g. $-32 \neq -32$, $-2 + 3 = 3 + -2$, $2 \times -3 = -3 \times 2 = -2 \times 3$, $2 \div -3 = -2/3 = -2/3$)	M09N-SO03 Add, subtract, multiply and divide integers, including using the order of operations; check the equivalence in expressions involving negative numbers; generalise about exponents of 0 and 1; add, subtract, multiply and divide fractions and decimals; generalise the rule for dividing by a fraction; connect multiplying or dividing decimals with multiplying or dividing their fraction equivalents.	Number Operations - Add and Subtract Integers - Multiply and Divide Integers - Order of Operations including Integers - Add and Subtract Fractions and Decimals - Multiply and Divide Fractions and Decimals
Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons

- Percentages are a way of expressing a fraction of 100. - Percentages can be used to proportionally increase or decrease a quantity by multiplication and can be presented as decimal multipliers. - A percentage increase can be described by the additional percentage or the percentage of the final amount compared to the original amount (e.g. a 20 increase represents 120 of the original amount). - A percentage decrease can be described by the percentage lost or the percentage of the final amount compared to the original amount (e.g. a 20 decrease represents 80 of the original amount). - Ratios show part-to-part or part-to-whole comparisons of two or more quantities. - Ratios can be scaled up or down or simplified. - A rate proportionally compares two quantities that have different units of measure; when working with rates, 'per' means 'for every' in day-to-day contexts.	- Finding a fraction or percentage of a number - Finding the whole amount, given a fraction or percentage (e.g. 20 of an amount is 30. What is the original amount?) - Expressing a number as a fraction or percentage of another number - Increasing or decreasing a number by a given proportion - Representing proportional relationships using whole number ratios, including reducing the ratios to their simplest form - Dividing a quantity into two parts, given the part:part or part:whole ratio - Finding equivalent ratios and rates by scaling up or down	M09N-SO04 Find a fraction or percentage of a number; find the whole amount, given a fraction or percentage; express a number as a fraction or percentage of another; increase or decrease a number by a given proportion; represent and simplify ratios; divide a quantity using a ratio; find equivalent ratios or rates by scaling up or down.	<u>Proportional Reasoning</u> - One Number as a Fraction or Percentage of Another - Find the Fraction or Percentage of a Number - Find the Whole Given a Fractional or Percentage Amount - Increase and Decrease by a Percentage - Simplify and Scale Ratios - Share in a Given Ratio - Solve Problems Involving Ratios - Solve Problems Involving Rates - Use Proportional Reasoning in Context
Number structures and operations			
Percentages, ratios, rates, and proportions are often applied in financial situations.	- Applying percentage mark-ups and discounts - Calculating simple interest and GST on dollar amounts (e.g. finding 15 GST on \$432)	M09N-FM01 Apply percentages, ratios, rates, and proportions in financial contexts, calculating mark-ups, discounts, simple interest, and GST.	<u>Financial Mathematics</u> - Percentage Markups and Discounts - GST - Simple Interest

Year 9 Algebra - New NZC content available now

Equations and relationships			
Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons
- The properties of operations (commutative, distributive, associative, inverse, and identity) and the order of operations apply to numbers and variables. - When operating on or writing equations with fractions, fractions of magnitude greater than 1 are usually written as improper fractions.	- Simplifying and manipulating algebraic expressions involving sums, products, differences, and positive integer powers, by: - collecting like terms - factorising using common factors - expanding products, including multiplying a single term by a bracketed term. - Generalising the properties of operations with variables (e.g. multiplication is distributive over subtraction) - Multiplying or dividing by -1 in inequalities (e.g. $-3 < 5$) - Forming and solving linear equations with rational number coefficients and linear inequalities with positive coefficients - Using substitution to find the value of an expression or a formula, given the values of its variables - Rearranging formulae (e.g. solving $P = 2l + 2w$ for w)	M09A-ER01 Simplify algebraic expressions involving the four operations, including positive integer powers; expand single brackets and factorise using common factors; form and solve linear equations with rational coefficients and linear inequalities with positive coefficients; rearrange formulae.	Algebraic Expressions and Equations - Substitute into Algebraic Expressions and Formulae - Add and Subtract Like Terms - Multiply and Divide Algebraic Expressions - Expand and Factorise a Single Bracket - Mixed Simplify Algebraic Expressions - Solve Multi-Step Equations - Solve Inequalities - Solve Equations with the Unknown on Both Sides - Rearrange Formulae
Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons

- For a specific straight line, the gradient, m, and y-intercept, c, are fixed, and x varies with y according to the rule $y = mx + c$. - The y-intercept touches the y-axis and has coordinates $(0, c)$. - In the equation of a line $y = mx + c$, m and c represent constants (they are unchanging), y and x can vary, and all the values of x and y that satisfy the equation create an infinite number of points that form the line. - The gradient is a ratio that can be interpreted as the 'steepness' of a linear graph. - A positive gradient slopes upwards when the graph is read from left to right. - A negative gradient slopes downwards when the graph is read from left to right. - A horizontal line has a gradient equal to zero. Its equation will be $y = c$.	- Interpreting rules of the form $y = mx + c$ and using a combination of substitution and tables to plot points from the linear graph, connecting the points to form a line - Identifying the sign of m from tables of values, and linear graphs - Identifying the value of c for a straight line, from tables of values and from linear graphs - Using tables and graphs in the coordinate plane (showing all four quadrants), and diagrams to recognise the relationship between the ordinal position and its corresponding element in a linear pattern; developing a rule for the pattern in words; and making conjectures about further elements in the pattern - Identifying the constant increase or decrease in a linear pattern, using variables and algebraic notation to represent the rule in an equation, and drawing on the rule to make conjectures	M09A-ER02 Plot and connect points from a rule of the form $y = mx + c$ to form a linear graph; recognise linear patterns in diagrams, tables and graphs and develop a rule for the pattern in words; identify the values of m and c in the table or graph of a linear pattern and use these to represent the rule in an equation; make conjectures about further elements in a linear pattern.	<u>Linear Relationships</u> - Graphs of Linear Patterns - Gradient and y-Intercept of a Linear Graph - Equation of a Linear Pattern - Use a Linear Pattern or Graph to Make Conjectures - Applications of Linear Graphs
--	--	---	--

Year 9 Measurement - New NZC content available from July 2026

Measuring			
Knowledge	Practices	EP's Code & Descriptor	EP Lessons
A solution to a calculation cannot be more precise than the least precise number used in that calculation.	Estimating, calculating, converting, and accurately representing measurements	M09M-ME01 Estimate, calculate, convert, and accurately represent measurements, recognising that results of calculations cannot be more precise than the least precise value used.	Measurement Precision and Scale - Precision in Measurement Calculations - Estimate and Select Appropriate Metric Units
- Conversions between different-sized metric units may be needed to give the appropriate units for a measurement or calculation. - The metric prefixes 'kilo-', 'mega-', 'giga-', and 'tera-' signify a unit that is one thousand, one million, one billion, and one trillion times larger than the base unit. - The metric prefixes 'centi-', 'milli-', 'micro-', and 'nano-' signify a unit one hundredth, one thousandth, one millionth, and one billionth the size of the base unit. - Derived units (e.g. cm^2, km/h) reflect a relationship—a product or quotient—between two different measurements.	Selecting and using appropriate measurement units for a given context, converting between metric units if necessary and using appropriate prefixes	M09M-ME02 Select and use appropriate metric units for a given context; convert between metric units, using the appropriate prefixes.	Measurement Precision and Scale - Metric Unit Conversions - Metric Units of Area and Volume

Knowledge	Practices	EP's Code & Descriptor	EP Lessons
-----------	-----------	------------------------	------------

- The constant π is found by dividing a circle's circumference by its diameter. - For a circle of radius r, the circumference is $2\pi r$.	- Finding: - the perimeter of 2D shapes - the circumference of circles - the area of parallelograms, trapeziums, and kites, relating the formulae used to the formula for a rectangle - Deriving the formulae for the perimeter of half and quarter circles from the formula for a full circle - Calculating the perimeter of half circles and quarter circles	M09M-ME03 Find the perimeter of 2D shapes; find the circumference of circles and the perimeter of half and quarter circles; find the area of parallelograms, trapeziums and kites, relating their formulae to the formula for the area of rectangle.	<u>Perimeter and Area</u> - Area of Quadrilaterals - Perimeter of 2D Shapes - Circumference of Circles - Perimeter of Half and Quarter Circles
- For right-angled triangles, Pythagoras' theorem states that the square of the hypotenuse (longest side) is equal to the sum of the squares of the other two sides. - If (a, b, c) is a Pythagorean triple, then so is (ka, kb, kc), where k is a positive integer.	- Using Pythagoras' theorem to: - verify that given side lengths in a right-angled triangle satisfy the theorem - find the length of the hypotenuse in a right-angled triangle, given the lengths of the other two sides - Proving Pythagoras' theorem (e.g. by rearranging four congruent right-angled triangles into a square) - Finding another Pythagorean triple from a given Pythagorean triple	M09M-ME04 Prove Pythagoras' theorem and use it to verify if a triangle is right-angled; identify Pythagorean triples including finding another triple from a given Pythagorean triple; use Pythagoras' theorem to find the length of the hypotenuse, given the length of the other two sides.	<u>Pythagoras' Theorem</u> - Pythagoras' Theorem - Pythagorean Triples - Pythagoras' Theorem - Find the Hypotenuse
- There is a fixed relationship between speed, distance, and time: $speed = distance/time$. - In position-time graphs, the gradient represents speed.	- Finding distance, given speed and time - Finding time, given distance and speed	M09M-ME05 Use the relationship $speed = distance/time$ to find distance or time, given the other two; interpret the gradient of a position-time graph as speed.	<u>Rates</u> - Find Distance, Given Speed and Time - Find Time, Given Distance and Speed - Reason About Duration

Knowledge	Practices	EP's Code & Descriptor	EP Lessons
Decimal measures are used for very small durations (e.g. milliseconds); the rest of time measurement uses a different system, based principally on 12 and 60.	Reasoning about duration using different units of time, including decimal fractions of milliseconds where appropriate	M09M-ME06 Reason about durations using different units of time, including decimal fractions of milliseconds when appropriate.	Rates Reason About Duration

Year 9 Geometry – New NZC content available from July 2026

Shapes			
Knowledge	Practices	EP's Code & Descriptor	EP Lessons
- A circle is the path traced out by a point moving in a plane and always a fixed distance (the radius) from a central point. - Angles between parallel lines and a transversal can be corresponding, co-interior, or alternate; corresponding angles are equal, and alternate angles are equal.	- Identifying and describing parts of a circle (e.g. a chord; the diameter, radius, and circumference) and how they relate to each other - Reasoning about unknown angles in situations involving intersecting and parallel lines and transversals. - Verifying that two lines are parallel, using angles at the intersections of a transversal	M09G-SH01 Identify, describe and relate parts of a circle including radius, diameter, circumference and chords; reason about unknown angles involving intersecting lines, and parallel lines and transversals.	Circles and Angles - Parts of a Circle - Intersecting Lines and Vertically Opposite Angles - Angles on Parallel Lines - Verifying Parallel Lines Using Angle Reasoning
Spatial reasoning			
Knowledge	Practices	EP's Code & Descriptor	EP Lessons
A set of points in a plane can be transformed by translation, reflection about a line, and rotation about a fixed point.	- Representing and constructing 3D shapes, including rectangular and triangular prisms and pyramids, from nets and plan views drawings - Transforming 2D shapes in the coordinate plane by translation, reflection about a given line of symmetry, and rotation about a given point by a multiple of 90 degrees	M09G-SR01 Represent and construct rectangular and triangular prisms and pyramids from nets and plan views; transform 2D shapes in the coordinate plane by translation, reflection across a given point of symmetry, and rotation about a given point.	Representing 3D Objects - Nets of Prisms - Nets of Pyramids - Plan Views and Elevations Transformations - Reflection in a Mirror Line - Rotation About a Centre Point - Translation Using Vectors - Combined Transformations

Year 9 Statistics – New NZC content available from July 2026

Developing knowledge from data			
Knowledge	Practices	EP's Code & Descriptor	EP Lessons
- Multivariate data is data in a set that has more than two variables. - Data can be collected from observational studies in which the observers do not alter or control the behaviour of the subjects. - Statistical questions clearly identify the variable, group of interest, and the intent of an investigation. - A summary investigation is about a group. - A comparison investigation compares a variable across two clearly identified groups. - A relationship investigation looks for a connection between paired numerical or paired categorical variables. - A time-series investigation looks at a variable over time. - Primary data is data that is collected first-hand. - Secondary data is data collected by someone else.	- Planning and collecting multivariate data to respond to a statistical question and where at least one variable is categorical and at least one is numerical - Calculating the five-point-summary for numerical data: - the minimum value - the value of quartile 1, or Q1 - the value of the median or quartile 2, or Q2 - the value of quartile 3, or Q3 - the maximum value - Calculating the interquartile range as $IQR = Q3 - Q1$	M09S-KD01 Understand that statistical questions include comparisons, relationships and time-series; plan and collect multivariate data to answer a statistical question, including an understanding of variable types; calculate five-point summaries and interquartile range for numerical data.	Data visualisation and analysis - Multivariate Data - Data Collection and Bias - Centre, Spread and Shape - Five-Point Statistical Summary and Box Plots
Visualisation of data			
Knowledge	Practices	EP's Code & Descriptor	EP Lessons
A distribution is formed from all the possible values of a variable and their frequencies. It can be shown using data visualisations that show patterns, trends, and variations and that include dot plots, bar graphs, frequency tables, box plots, histograms, time-series graphs, scatter plots, and	- Creating multiple data visualisations for an investigation - Selecting appropriate scales for data	M09S-VD01 Create appropriate data visualisations that show patterns, trends and variation for an investigation (including dot plots and bar	Data visualisation and Analysis - Dot Plots and Bar Graphs - Frequency Tables and Histograms - Time-Series Graphs

two-way tables. A good data visualisation should allow viewers to discern the variable(s) and who the data was collected from, and then, depending on the type of visualisation, additional information such as frequency, proportions, patterns or trends, and units for numerical variables.		graphs, frequency tables and histograms, box plots, scatter plots and time-series graphs).	
- In relationship investigations: - sometimes one variable is thought of as predictive of the other variable; then the response or dependent variable is on the y-axis, and the 'predictive', explanatory, or independent variable is on the x-axis - an eyeballed line or curve of best fit can be added for paired numerical data.	For relationship investigations, drawing an eyeballed line or curve of best fit to predict possible y-values (the response variable) for given x-values (the explanatory variable)	M09S-VD02 For relationship investigations, understand explanatory (independent) vs response (dependent) variables, draw lines or curves of best fit, and predict values for the response variable for given values of the explanatory variable.	Data visualisation and Analysis Scatterplots
Interpretation of data			
Knowledge	Practices	EP's Code & Descriptor	EP Lessons
- Elements of chance affect the certainty of results from observational studies and experiments. - Uncertainty should be taken into account when making claims.	Critically considering data visualisations, including those from contemporary media, to see if they support or misrepresent the data	M09S-ID01 Critically evaluate data visualisations and claims, including those from the media, to see if they are reliably supported by the data or are a misrepresentation.	Misleading Data Visualisations in the Media

Data visualisations need to be critically assessed to see if they support or misrepresent the data.	- Communicating findings in context to answer an investigative question, using evidence - Providing possible explanations for findings - Comparing findings to initial conjectures or assertions and existing knowledge - Evaluating findings and data-collection methods to check whether claims or statements are supported by the data	M09S-ID02 Communicate findings in context and with evidence to answer a statistical question; compare findings to initial conjectures and provide possible explanations; evaluate findings and data collection methods to check the validity of claims.	<u>Statistical Investigations</u> - Comparison Investigations - Relationship Investigations - Time-Series Investigations - Investigation: Problem and Plan - Investigation: Data - Investigation: Analysis and Conclusion
---	--	--	---

Year 9 Probability - **New NZC content available from August 2026**

Knowledge	Practices	EP's Code & Descriptor	EP Lessons
- Some chance-based situations, such as tossing a non-regular 3D shape, can only be explored through probability experiments. - Results from sets of repeated trials for the same experiment may vary. - The Law of Large Numbers states that as the number of trials in a chance experiment increases, the experimental probability will approach the experiment's theoretical probability. - Lists, tables, two-way tables, and tree diagrams are useful systematic methods for generating all possible outcomes. - In joint events, events can be dependent or independent. - Probabilities for joint events cannot simply be added, because doing so would double-count outcomes that are common to both events. - Mutually exclusive events cannot occur together.	- Carrying out a chance experiment, including running simulations for a large number of trials using digital tools - Systematically listing outcomes for the sample space - Comparing experimental probability (from at least 30 trials) to theoretical probability for a chance experiment, and explaining why they differ and how increasing the number of trials reduces this difference - Carrying out chance experiments of at least 100 trials and comparing the experimental probability of each individual outcome to its theoretical probability, in order to demonstrate the Law of Large Numbers - Creating and describing data visualisations for the distribution of observed outcomes from a chance experiment	M09P-PR01 Systematically list outcomes and probabilities for the sample space; calculate probabilities of joint events including dependence and independence; carry out chance experiments, including digital simulations; compare experimental and theoretical probabilities including an understanding of the effect of increasing the number of trials; create, describe and use visualisations for probabilities distributions.	<u>Probability</u> - Sample Space and Possible Outcomes - Independent, Dependent, and Mutually Exclusive Events - Probability from Tree Diagrams - Probability from Two-Way Tables - Experimental Probability and Relative Frequency - Simulations

The estimated probability of an event from an experiment is the number of times the event happens divided by the total number of trials in the experiment (i.e. the relative frequency for that event).	Calculating probability estimates for different outcomes		
---	--	--	--

Year 10 Number - New NZC content available now

Number structures and operations			
Knowledge The facts, concepts, principles, and theories to teach.	Practices The skills, strategies, and applications to teach.	EP's Code & Descriptor	EP Topics & Lessons
- Non-repeating, infinite decimals are irrational numbers; some of them are represented by special symbols, such as $\sqrt{2}$ and π. - The terms index, power, and exponent are used interchangeably. - For the number a^n, a represents the base, and n represents the exponent. - Exponent rules govern how operations involving exponents work and include: $a^m * a^n = a^{m+n}$ (the product-of-exponents rule) $a^m / a^n = a^{m-n}$ (the quotient-of-exponents rule) $(am)^n = a^{m*n}$ (the exponent-of-exponents rule) $a^{-m} = 1/a^m$ ($a \neq 0$) (the negative exponent rule) $a^0 = 1$ ($a \neq 0$) (the zero exponent rule). - Only like roots can be added and subtracted; multiples of a root are represented with coefficients (e.g. $\sqrt{3} + \sqrt{3} = 2\sqrt{3}$). - There are rules for working with roots, including not leaving roots in a denominator: $\sqrt{a} \times \sqrt{a} = a$ $\sqrt{a} \times \sqrt{b} = \sqrt{ab}$	- Identifying, reading, writing, representing, comparing, ordering, and converting between fractions, decimals, and percentages - Recording, comparing, ordering, and calculating with numbers in scientific notation - Identifying irrational numbers (e.g. cube root of $\sqrt[3]{10}$, π) - Generalising about whether square and cube roots of whole numbers are rational or irrational - Calculating using integer exponents - Calculating exactly using fractions, roots, and multiples of π.	M10N-SO01 Read, write, represent, compare, order, and convert between fractions, decimals and percentages; compare and calculate with numbers in scientific notation; identify irrational numbers, including in square and cube roots; calculate using the exponent rules with integer exponents; calculate exactly using fractions, multiples of π , and roots, including using the laws of roots.	Number Structures - Rational vs. Irrational Numbers - Rules of Exponents - Negative and Zero Exponents - Add and Subtract Like Roots - Exact Values with Fractions, Roots and Pi - Multiply, Divide and Rationalise Roots

○ $\sqrt{a} \div \sqrt{a} = 1$ ○ $\sqrt{a} \div \sqrt{b} = \sqrt{a/b} = \sqrt{a}/\sqrt{b} \times \sqrt{b}/\sqrt{b} = \sqrt{(ab)/b}$			
---	--	--	--

Knowledge	Practices	EP's Code & Descriptor	EP Lessons
- The rules for identifying significant figures are: - all non-zero digits are significant - zeros appearing anywhere between two non-zero digits are significant - leading zeros are not significant - trailing zeros are significant if there is a decimal point present, and are not significant otherwise - exact numbers have an unlimited number of significant figures. - For numbers written in scientific notation as $a \times 10^k$, the number of significant figures is determined by applying the rules to the value of a.	- Using rounding, including to specified significant figures, and estimation to predict results and to check the reasonableness of calculations - Rounding to the degree of precision required for the context	M10N-SO02 Round to the degree of precision required for the context, including the use of significant figures; use rounding and estimation to predict results and check the reasonableness of calculations.	Number Operations - Significant Figures - Rounding to a Precision Required for the Context
- The order of operations is important when evaluating or forming expressions. Operations are done as follows: - grouped operations (e.g. expressions under a square root, involving the numerator of a fraction, or inside brackets) - exponents or powers - multiplication and division, from left to right - addition and subtraction, from left to right. - A mnemonic, such as GEMA—Grouped (e.g. $\sqrt{3^2 + 4^2}$), Exponents (e.g. $((-2)^3)$), Multiplicative ($\times$ and $\div$), Additive ($+$ and $-$)—can be used to remember the order of operations. - Every non-zero number has a multiplicative inverse (reciprocal), and their product is 1 (e.g. 5 and $1/5$ are reciprocals, so $5 \times 1/5 = 1/5 \times 5 = 1$).	- Adding, subtracting, multiplying, and dividing positive and negative numbers, including fractions and decimals - Evaluating positive integer exponents for positive and negative numbers (e.g. 3^5, $(-1)^4$)	M10N-SO03 Add, subtract, multiply and divide positive and negative numbers, including fractions and decimals and multiple operations; evaluate positive integer exponents for positive and negative numbers.	Number Operations - Calculations with Positive and Negative Numbers - Calculations with Scientific Notation - Order of Operations with Fractions and Decimals

Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons
- Percentages are a way of expressing a fraction of 100. - Percentages can be used to proportionally increase or decrease a quantity by multiplication and can be presented as decimal multipliers. - A percentage increase can be described by the additional percentage or the percentage of the final amount compared to the original amount (e.g. a 20% increase represents 120% of the original amount). - A percentage decrease can be described by the percentage lost or the percentage of the final amount compared to the original amount (e.g. a 20% decrease represents 80% of the original amount). - Ratios show part-to-part or part-to-whole comparisons of two or more quantities. - Ratios can be scaled up or down or simplified. - A rate proportionally compares two quantities that have different units of measure; when working with rates, 'per' means 'for every' in day-to-day contexts.	- Finding a fraction or percentage of a number - Finding the whole amount, given a fraction or percentage (e.g. 20% of an amount is 30. What is the original amount?) - Expressing a number as a fraction or percentage of another number - Applying a proportional increase or decrease to a number - Calculating the percentage increase or decrease between two numbers (e.g. What is the percentage increase between 50 and 75?) - Comparing and using ratios and rate (e.g. finding speed, given distance and time)	M10N-SO04 Find a fraction or percentage of a number; find the whole amount, given a fraction or percentage; express a number as a fraction or percentage of another; increase or decrease a number by a given proportion; calculate percentage increase or decrease between two numbers; compare and use ratios and rates.	Proportional Reasoning - Find the Fraction or Percentage of a Number - Find the Whole Given a Fractional or Percentage Amount - Percentage Increase and Decrease - Percentage Change - Solve Problems Involving Ratios - Solve Problems Involving Rates - Use Proportional Reasoning in Context
Financial mathematics			

Percentages, ratios, rates, and proportions are often applied in financial situations.	- Converting New Zealand dollars into other currencies, and vice versa - Finding proportions of costs (e.g. the price of 400 g of an item, given the cost per kilogram) - Calculating compound interest on dollar amounts, by calculating simple interest month by month for short time periods (e.g. How much do you have after 3 months if you invest \$100 at a 2.5% -per-month interest rate?)	M10N-FM01 Use exchange rates to convert between New Zealand dollars and other currencies; calculate proportions of costs; calculate simple and compound interest for short time periods.	<u>Financial Mathematics</u> - Currency Conversions - Simple and Compound Interest - Unit Pricing and Cost Proportions - Apply Proportional Reasoning in Financial Situations
--	--	---	--

Year 10 Algebra - New NZC content available from July 2026

Equations and relationships			
Knowledge	Practices	EP's Code & Descriptor	EP Topics & Lessons
- The properties of operations (commutative, distributive, associative, inverse, and identity) and the order of operations apply to numbers and variables. - When operating on or writing equations with fractions, fractions of magnitude greater than 1 are usually written as improper fractions. - Multiplying or dividing by a negative number reverses an inequality. - The constant rate of change of a linear graph is the vertical change (how far it goes up or down) divided by the horizontal change (how far it moves sideways). - Finding square roots of numbers and solving quadratic equations are related but have some differences. - Any positive real number has two square roots: one positive (the principal square root) and one negative (e.g. for 16, 4 and -4). - The square root operation $\sqrt{}$ refers specifically to the principal square root (e.g. $\sqrt{16} = 4$). - There are 0, 1, or 2 real-number solutions to $x^2 = a$, where a is a number. - The zero product property states that if two expressions multiply to be zero, then at least one expression must be zero (e.g. if $ab = 0$ then either a or b is 0, or if $(x - a)(x - b) = 0$ then	- Simplifying and manipulating algebraic expressions involving sums, products, differences, and positive integer powers, by: - collecting like terms - factorising using common factors - factorising quadratic expressions with a leading coefficient of 1 - expanding products, including multiplying a single term by a bracketed term, and multiplying two expressions each of the form $ax + b$, where a and b are integers - factorising by grouping (i.e. using the distributive law) (e.g. $x^2 + 2x - 8 = x^2 + 4x - 2x - 8 = x(x + 4) - 2(x + 4) = (x - 2)(x + 4)$) - Forming and solving linear equations and linear inequalities with rational number coefficients (e.g. $-2/5x + 5 \leq -10$), giving exact or rounded solutions, and representing the solution on a number line - Solving quadratic equations that are factorised or of the form $x^2 + c = 0$ (where c is an integer), and connecting the solutions to the x-intercepts of the related graph - Substituting into, rearranging, and simplifying expressions or formulae that involve squares or square roots (e.g. $A = \pi r^2$, $c^2 = a^2 + b^2$)	M10A-ER01 Simplify algebraic expressions involving the four operations, including positive integer powers; expand single brackets and factorise using common factors; expand two brackets, and factorise quadratic expressions with a leading coefficient of 1; form and solve linear equations and inequalities with rational coefficients, representing the solution on a number line; solve quadratic equations in factorised or $x^2 + c$ form, connecting solutions to x-intercepts of the related graph; rearrange formulae that involve squares or square roots.	Algebraic Expressions and Equations - Simplify Algebraic Expressions - Expand Products - Factorise Quadratic Expressions - Solve Linear Equations - Solve Linear Inequalities - Solve Quadratic Equations - Rearrange and Substitute into Formulae

either $(x - a) = 0$ or $(x - b) = 0$). - There are specific factorising relationships that are useful to recognise: $x(x + a) = x^2 + ax$ - difference of two squares: $(x + a)(x - a) = x^2 - a^2$ - square of a sum: $(x + a)^2 = x^2 + 2ax + a^2$ - square of a difference: $(x - a)^2 = x^2 - 2ax + a^2$ - The solution to a linear inequality is a set of values which may be represented with a number line.			
--	--	--	--

Knowledge	Practices	EP's Code & Descriptor	EP Lessons
- For a specific straight line, the gradient, m, and y-intercept, c, are fixed, and x varies with y according to the rule $y = mx + c$. - The y-intercept touches the y-axis and has coordinates $(0, c)$. - The gradient m of a straight line can be determined with the formula $m = \text{rise/run} = \Delta y / \Delta x$. - A vertical line has an infinite gradient. This cannot be expressed in the formula $m = \text{rise/run}$ as it becomes $m = \text{rise}/0$, which cannot be evaluated. - The equation of a vertical line is $x = b$, where the x-intercept is $(b, 0)$.	- Interpreting and graphing linear equations in the form $y = mx + c$, using the gradient and y-intercept - Calculating the gradient and y-intercept of a line, using a graph - Comparing the relative magnitude of m in two or more linear graphs, using the concept of steepness and relating it to the magnitude of m - Finding the equation of a line, given two points or the gradient and a single point - Determining the effect on graphs in the coordinate plane of changing the coefficient of x^2 and the fixed value c, for a range of quadratic equations of the form $y = ax^2$ or $y = x^2 + c$, where a is a positive integer and c is an integer	M10A-ER02 Graph and interpret equations of the form $y = mx + c$ by calculating the gradient and y-intercept; compare the steepness of two or more graphs, relating the steepness to the value of m; find the equation of a line, given two points or the gradient and a single point; investigate the effect on graphs of the form $y = ax^2$ and $y = x^2 + c$ by changing a or c.	Linear and Quadratic Relationships - Plot Linear Relationships from an Equation - Gradient and y-Intercept of a Linear Graph - Explore the Effect of Changing the Gradient and y-Intercept - Equation of a Line from the Gradient and y-Intercept - Equation of a Line from the Gradient and a Point - Equation of a Line from Two Points - Applications of Linear Graphs - Explore the Graphs of Quadratic

			Relationships • Features of Quadratic Graphs
--	--	--	--

Year 10 Measurement - New NZC content available from June 2026

Measuring			
Knowledge	Practices	EP's Code & Descriptor	EP Lessons
- A solution to a calculation cannot be more precise than the least precise number used in that calculation. - The number of significant figures in a measurement is the number of digits that contribute to the degree of accuracy of the measurement, given as the number of digits known with certainty plus one uncertain digit. - When calculating, it is best to use at least one more significant figure than is required in the final solution, and round at the end of the whole calculation.	Estimating, calculating, converting, and accurately representing measurements using significant figures	M10M-ME01 Estimate, calculate, convert, and accurately represent measurements using significant figures, ensuring precision of a solution matches the least precise value used.	Measurement Precision and Scale - Precision in Measurement Calculations - Estimate and Represent Measurements Using Significant Figures
- Conversions between different-sized metric units may be needed to give the appropriate units for a measurement or calculation. - The metric prefixes 'kilo-', 'mega-', 'giga-', and 'tera-' signify a unit that is one thousand, one million, one billion, and one trillion times larger than the base unit. - The metric prefixes 'centi-', 'milli-', 'micro-', and 'nano-' signify a unit one hundredth, one thousandth, one millionth, and one billionth the size of the base unit. - Derived units (e.g. cm^2, km/h) reflect a relationship—a product or quotient—between two different measurements.	Converting between metric units, and using the appropriate prefixes in the metric system (e.g. kilo-, mega-, centi-, milli-, micro-)	M10M-ME02 Convert between metric units in measurement calculations, including appropriate prefixes and the use of derived units.	Measurement Precision and Scale Metric Unit Conversions including Derived Units

Knowledge	Practices	EP's Code & Descriptor	EP Lessons
- The area of a circle is given by $A = \pi r^2$. - The surface area of a solid object is a measure of the total area that the surface of the object occupies. - The general formula for the volume of a prism is $V = Al$, where A is the consistent cross-sectional area and l is perpendicular to the plane of the cross-sectional area.	- Finding: - the area of circles and composite shapes that include circles or semicircles - the surface area and volume or capacity of prisms, pyramids, and cylinders - Deriving the formulae for the area of half and quarter circles from the formula for a full circle - Deriving the formulae for the surface area of cubes, rectangular prisms, and cylinders - Calculating the area of half circles and quarter circles - Calculating the surface area of cubes, rectangular prisms, triangular prisms, cylinders, and composite figures - Calculating the volume of cylinders and irregular prisms with a consistent cross-sectional area	M10M-ME03 Find the area of circles and composite shapes that include parts of circles; find the surface area of rectangular and triangular prisms, cylinders, pyramids, and composite figures; find the volume/capacity of irregular prisms, cylinders, and pyramids.	Area, Surface Area and Volume - Circumference and Area of Circles - Area of Half and Quarter Circles - Area of Composite Shapes - Surface Area and Volume of Pyramids - Volume of Cylinders and Irregular Prisms - Surface Area of Prisms, Cylinders and Composite Solids
- Resizing (enlarging or reducing) a shape changes its perimeter, area, or volume proportionally according to the dimensions of the units; linear metric conversions must be squared to convert area and cubed to convert volume. - For right-angled triangles, Pythagoras' theorem states that the square of the hypotenuse (longest side) is equal to the sum of the squares of the other two sides. - If (a, b, c) is a Pythagorean triple, then so is (ka, kb, kc), where k is a positive integer.	- Scaling a shape by a factor, and determining the scale factor for the scaled shape's area or volume - Using Pythagoras' theorem to: - find the length of an unknown side in a right-angled triangle - check if a triangle has a right angle - calculate the distance between two points in the coordinate plane, yielding the distance formula	M10M-ME04 Scale 2D and 3D shapes, and determine the scale factor for the scaled shape's perimeter, area or volume. M10M-ME05 Use Pythagoras' theorem to verify if a triangle is right-angled; find the length of any unknown side in a right-angled triangle; derive and use the distance formula to calculate the distance between two	Measurement Precision and Scale - Scale 2D and 3D Shapes Pythagoras' Theorem - Pythagoras' Theorem and Identifying Right Angled Triangles - Pythagoras' Theorem - Find a Missing Side - Pythagoras' Theorem and the Distance Formula

		points in the coordinate plane.	
--	--	---------------------------------	--

Knowledge	Practices	EP's Code & Descriptor	EP Lessons
- There is a fixed relationship between speed, distance, and time: $\text{speed} = \text{distance} / \text{time}$. - In position-time graphs, the gradient represents speed.	Finding speed, distance, or time, given any two of the measurements	M10M-ME06 Use the relationship $\text{speed} = \text{distance} / \text{time}$ to find speed, distance, or time, given any two of the values; interpret the gradient of a position-time graph as speed.	Rates - Solve Problems involving Speed, Distance and Time - Read and Interpret Distance/Time Graphs - Solve Problems involving Duration
Decimal measures are used for very small durations (e.g. milliseconds); the rest of time measurement uses a different system, based principally on 12 and 60.	Reasoning about duration using different units of time, including decimal fractions of milliseconds where appropriate	M10M-ME07 Reason about durations using different units of time, including decimal fractions of milliseconds where appropriate.	Rates Solve Problems involving Duration

Year 10 Geometry - **New NZC content available from July 2026**

Shapes			
Knowledge	Practices	EP's Code & Descriptor	EP Lessons
- In similar shapes, corresponding angles are equal and the lengths of corresponding sides are proportional. - Congruent shapes are identical in shape and size.	Using the properties of similarity in 2D shapes, including right-angled triangles, to find unknown lengths and angles	M10G-SH01 Use similarity in 2D shapes, including right-angled triangles, to find unknown lengths and angles.	Congruence and Similarity - Congruence and Similarity - Use Similarity to Find Unknown Lengths and Angles - Use Similarity to Solve Problems in Context
Spatial reasoning			
A set of points in a plane can be transformed by translation, reflection about a line, and rotation about a fixed point.	- Representing and constructing 3D shapes, including cylinders, from nets - Transforming 2D shapes, including composite shapes, by resizing them by any scale factor	M10G-SR01 Represent and construct 3D shapes, including cylinders, from nets; transform composite 2D shapes, including resizing them by any scale factor.	Spatial Reasoning - Nets of 3D Shapes - Reflection, Rotation and Translation - Scaling - Combined Transformations

Year 10 Statistics – New NZC content available from August 2026

Developing knowledge from data			
Knowledge	Practices	EP's Code & Descriptor	EP Lessons
- It is not always possible to get data from the entire population (as in a census). To make inferences about a population without a census, sampling is used. - Samples must be taken randomly from the population, otherwise there will be bias in the data, leading to inaccurate and misleading statistics. Samples are ideally chosen using simple random sampling, in which each item of the population has an equal probability of being chosen. - When sampling from a population, the distribution for a variable varies from sample to sample. To make a reliable inference about what is happening in the population, sample sizes need to be: - about 1,000 for categorical variables (with the sample obtained using technology) - at least 30 for numerical variables.	- Planning and collecting multivariate data to respond to a statistical question using a sample or census - Reasoning why a mean or median would be a better measure of central tendency for a given statistical question	M10S-KD01 Plan and collect multivariate data using a census or reliable sample to answer a statistical question; select and explain whether the mean or median is a better measure of centre to answer a given statistical question.	Data Visualisation and Analysis - Population, Census and Sampling - Reliable Sampling Methods - Comparisons: Analysis - Time-Series: Analysis - Describe Data and Communicate Findings - Critically Evaluate Statistical Claims
Visualisation of data			
Knowledge	Practices	EP's Code & Descriptor	EP Lessons
A distribution is formed from all the possible values of a variable and their frequencies. It can be shown using data visualisations that show patterns, trends, and variations and that include dot plots, bar graphs, frequency tables, box plots, histograms, time-series graphs, scatter plots, and	- Creating multiple data visualisations for an investigation - Selecting appropriate scales for data	M10S-VD01 Create appropriate data visualisations that show patterns, trends and variation for an investigation (including dot plots and bar	Data Visualisation and Analysis - Comparisons: Data Display - Relationships: Data Display - Time-Series: Data Display

- two-way tables. - A good data visualisation should allow viewers to discern the variable(s) and who the data was collected from, and then, depending on the type of visualisation, additional information such as frequency, proportions, patterns or trends, and units for numerical variables.		graphs, frequency tables and histograms, box plots, scatter plots and time-series graphs).	
- In relationship investigations: - sometimes one variable is thought of as predictive of the other variable; then the response or dependent variable is on the y-axis, and the 'predictive', explanatory, or independent variable is on the x-axis - an eyeballed line or curve of best fit can be added for paired numerical data.	For relationship investigations, drawing an eyeballed line or curve of best fit to predict possible y-values (the response variable) for given x-values (the explanatory variable)	M10S-VD02 For relationship investigations, understand explanatory (independent) vs response (dependent) variables, draw lines or curves of best fit, and predict values for the response variable for given values of the explanatory variable.	Data Visualisation and Analysis Relationships: Analysis
Interpretation of data			
Knowledge	Practices	EP's Code & Descriptor	EP Lessons
- Elements of chance affect the certainty of results from observational studies and experiments. - Uncertainty should be taken into account when making claims.	Critically considering data visualisations, including those from contemporary media, to see if they support or misrepresent the data	M10S-ID01 Critically evaluate data visualisations and claims, including those from the media, to see if they are reliably supported by the data or are a misrepresentation.	Statistical investigation - Comparison Investigations - Relationship Investigations - Time-Series Investigations - Investigation: Problem and Plan - Investigation: Data

• To compare data on the same variable from two groups in the same population, the 75%-to-50% comparison rule for informal inferences is used. If the groups are called A and B, and If more than 50% of group B's data is larger than 75% of group A's data, then we can make the claim that B tends to be larger than A back in the population. • An interpolation involves making predictions within the range of a numerical data variable. • An extrapolation involves making predictions outside the range of a numerical data variable.	• Communicating findings in context to answer an investigative question, using evidence and with an awareness of variability • Making an informal inference in comparative situations about what might be happening in the population, based on visual considerations and using the 75%-to-50% comparison rule • Making informal predictions from scatter plots in relationship situations	M10S-ID02 Communicate findings in context with evidence and awareness of variability to answer a statistical question; make informal inferences in comparison situations based on visual considerations and the 75% -to-50% rule; make informal predictions from scatterplots in relationship situations.	• Investigation: Analysis and Conclusion
--	--	--	--

Year 10 Probability – New NZC content available from August 2026

Experimental and theoretical probability			
Knowledge	Practices	EP's Code and Descriptor	EP Lessons
- Some chance-based situations, such as tossing a non-regular 3D shape, can only be explored through probability experiments. - Results from sets of repeated trials for the same experiment may vary. - The Law of Large Numbers states that as the number of trials in a chance experiment increases, the experimental probability will approach the experiment's theoretical probability. - Lists, tables, two-way tables, and tree diagrams are useful systematic methods for generating all possible outcomes. - In joint events, events can be dependent or independent. - Probabilities for joint events cannot simply be added, because doing so would double-count outcomes that are common to both events. - Mutually exclusive events cannot occur together. - The estimated probability of an event from an experiment is the number of times the event happens divided by the total number of trials in the experiment (i.e. the relative frequency for that event).	- Carrying out a chance experiment, including running simulations for a large number of trials using digital tools - Systematically listing outcomes for the sample space - Comparing experimental probability (from at least 30 trials) to theoretical probability for a chance experiment, and explaining why they differ and how increasing the number of trials reduces this difference - Carrying out chance experiments of at least 100 trials and comparing the experimental probability of each individual outcome to its theoretical probability, in order to demonstrate the Law of Large Numbers - Creating and describing data visualisations for the distribution of observed outcomes from a chance experiment - Calculating probability estimates for different outcomes	M10P-PR01 Systematically list outcomes and probabilities for the sample space; calculate probabilities of joint events including dependence and independence; carry out chance experiments, including digital simulations; compare experimental and theoretical probabilities including an understanding of the effect of increasing the number of trials; create, describe and use visualisations for probabilities distributions.	Probability - Experimental Probability and Relative Frequency - Sample Space and Possible Outcomes - Independent, Dependent, and Mutually Exclusive Events - Probability from Tree Diagrams - Probability from Two-Way Tables - Simulations