

T1	Number and Algebra	Unit
T1	· add, subtract, multiply and divide initially with whole numbers and progressing to numbers up to three decimal places;	M1
T1	· order rational numbers;	M1
T1	· use the concepts and vocabulary of factor, multiple and common factor;	M1
T1	· use the terms square, positive and negative square root, cube and cube root;	M1
T1	· use index notation for squares, cubes and powers of 10;	M1
T1	· understand equivalent fractions, simplifying a fraction by cancelling all common factors;	M1
T1	· add and subtract fractions;	M1
T1	· use decimal notation and recognise that each terminating decimal is a fraction;	M1
T1	· understand that percentage means ‘number of parts per 100’ and use this to compare proportions;	M1
T1	· use calculators effectively and efficiently;	M1
T1	· distinguish the different roles played by letter symbols in algebra, using the correct notation;	M1
T1	· manipulate algebraic expressions by collecting like terms and by multiplying a single term over a bracket; and	M1
T1	· solve simple equations.	M1
T1	· generate terms of a sequence using term-to-term definitions of the sequence;	M5
T1	· use the conventions for coordinates in the plane, and plot points in all four quadrants, including using geometric information;	M1
T1	· calculate with money and solve simple problems in the context of finance (for example profit and loss, discount, current accounts, cheques, statements, lodgements and withdrawals);	M1

	Number and Algebra	Unit
T2	<ul style="list-style-type: none"> <li>· add, subtract, multiply and divide any number;</li> </ul>	M1 M1 M2 M2
T2	<ul style="list-style-type: none"> <li>· use the concepts and vocabulary of factor (divisor), multiple, common factor, highest common factor, least common multiple, prime number and prime factor decomposition;</li> </ul>	M2 M3
T2	<ul style="list-style-type: none"> <li>· use index laws for multiplication and division of integer powers;</li> </ul>	M2
T2	<ul style="list-style-type: none"> <li>· add and subtract fractions, including mixed numbers;</li> </ul>	M1
T2	<ul style="list-style-type: none"> <li>· recognise that recurring decimals are exact fractions and that some exact fractions are recurring decimals;</li> </ul>	M2
T2	<ul style="list-style-type: none"> <li>· use percentages, including calculating simple interest;</li> </ul>	M1
T2	<ul style="list-style-type: none"> <li>· interpret fractions, decimals and percentages as operations;</li> </ul>	M1
T2	<ul style="list-style-type: none"> <li>· use ratio notation, including reduction to its simplest form and its various links to fraction notation;</li> </ul>	M5
T2	<ul style="list-style-type: none"> <li>· manipulate algebraic expressions by: <ul style="list-style-type: none"> <li>– collecting like terms;</li> <li>– multiplying a single term over a bracket; and</li> <li>– taking out common factors;</li> </ul> </li> </ul>	M1 M1 M2 M2
T2	<ul style="list-style-type: none"> <li>· set up and solve simple equations;</li> </ul>	M1
T2	<ul style="list-style-type: none"> <li>· use systematic trial and improvement to find approximate solutions of equations where there is no simple analytical method of solving them; and</li> </ul>	M6
T2	<ul style="list-style-type: none"> <li>· generate terms of a sequence using term-to-term and position to-term definitions of the sequence.</li> </ul>	M5
T2	<ul style="list-style-type: none"> <li>· use linear expressions to describe the <math>n^{\text{th}}</math> term of an arithmetic sequence;</li> </ul>	M6
T2	<ul style="list-style-type: none"> <li>· recognise and plot equations that correspond to straight-line graphs in the coordinate plane, including finding their gradient;</li> </ul>	M1 M2
T2	<ul style="list-style-type: none"> <li>· calculate with money and solve problems in the context of finance (for example currency exchange rates, discount, profit and loss, current accounts, cheques, statements, VAT, lodgements and withdrawals);</li> </ul>	M2

	Number and Algebra	
T3	<ul style="list-style-type: none"> <li>· use percentage and repeated proportional change;</li> </ul>	M2 M3
T3	<ul style="list-style-type: none"> <li>· calculate upper and lower bounds;</li> </ul>	M3 M4
T3	<ul style="list-style-type: none"> <li>· manipulate algebraic expressions by:               <ul style="list-style-type: none"> <li>– collecting like terms;</li> <li>– multiplying a single term over a bracket;</li> <li>– taking out common factors;</li> <li>– multiplying two linear expressions;</li> <li>– setting up and solving simple equations, including simultaneous linear equations in two unknowns;</li> <li>– factorising and solving quadratic equations;</li> <li>– factorising quadratic expressions, including the difference of two squares; and</li> <li>– simplifying rational expressions;</li> </ul> </li> </ul>	M2 M2 M2 M3 M7 M3/4 M3/4 M3/4
T3	<ul style="list-style-type: none"> <li>· understand that the form <math>y = mx + c</math> represents a straight line and that <math>m</math> is the gradient of the line and <math>c</math> is the value of the <math>y</math> - intercept;</li> </ul>	M3
T3	<ul style="list-style-type: none"> <li>· calculate with money, to include compound interest, insurance, taxation, wages, salaries and interest rates;</li> </ul>	M2

	Number and Algebra	
T4	<ul style="list-style-type: none"> <li>· use index laws for multiplication and division of integer, fractional and negative powers;</li> </ul>	M7 M8
T4	<ul style="list-style-type: none"> <li>· understand and use direct and indirect proportion;</li> </ul>	M7 M8
T4	<ul style="list-style-type: none"> <li>· use calculators effectively and efficiently, including trigonometrical functions;</li> </ul>	
T4	<ul style="list-style-type: none"> <li>· set up and solve simple equations, including simultaneous linear equations in two unknowns;</li> </ul>	M7
T4	<ul style="list-style-type: none"> <li>· solve quadratic equations using factors and the formula;</li> </ul>	M4
T4	<ul style="list-style-type: none"> <li>· understand the gradients of parallel and perpendicular lines;</li> </ul>	M3 M4

	Number and Algebra	Unit
T5	· approximate to specified or appropriate degrees of accuracy, including a given power of 10, number of decimal places and significant figures;	M1
T5	· understand and use number operators (+, ×, ÷) and the relationships between them, including inverse and reciprocal operations and hierarchy of operations (for example BODMAS);	M1
T5	· divide a quantity in a given ratio;	M5
T5	· understand the meaning of the words equation, formula and expression and distinguish between them;	M1
T5	· derive a formula, substitute numbers into a formula and change the subject of a formula;	M1 M1 M1 M6
T5	· solve linear inequalities in one variable, and represent the solution set on a number line;	M6
T5	· construct linear functions from real-life problems and plot their corresponding graphs;	M1
T5	· discuss, plot and interpret graphs (which may be non-linear) modelling real situations;	M5
T5	· generate points and plot graphs of simple quadratic functions, and use these to find approximate solutions;	M6
T5	· use index laws in algebra for multiplication and division of integer powers; and	M6 M7
T5	· calculate with money to include hire purchase, VAT, taxation, wages and salaries.	M1 M2

	Number and Algebra	Unit
T6	<ul style="list-style-type: none"> <li>use surds and <math>\pi</math> in exact calculations;</li> </ul>	M7
T6	<ul style="list-style-type: none"> <li>change a recurring decimal to a fraction;</li> </ul>	M8
T6	<ul style="list-style-type: none"> <li>interpret, order and calculate with numbers written in standard index form;</li> </ul>	M7
T6	<ul style="list-style-type: none"> <li>know the meaning of and use the words equation, formula, identity and expression;</li> </ul>	M1 M3
T6	<ul style="list-style-type: none"> <li>derive a formula, substitute numbers into a formula and change the subject of a formula, including cases where the subject appears in more than one term or where a power of the subject appears;</li> </ul>	M1 M2 M6 M7
T6	<ul style="list-style-type: none"> <li>solve linear inequalities in one or two variables, and represent the solution set on a number line or suitable diagram;</li> </ul>	M6
T6	<ul style="list-style-type: none"> <li>find the intersection points of the graphs of a linear and quadratic function, knowing that these are the approximate solutions of the corresponding simultaneous equations representing the linear and quadratic functions;</li> </ul>	M8
T6	<ul style="list-style-type: none"> <li>draw, sketch and recognise graphs of: <ul style="list-style-type: none"> <li>simple cubic functions;</li> <li>the reciprocal function</li> <li>the function <math>y = k^x</math> for integer values of <math>x</math> and simple positive values of <math>k</math>; and</li> <li>the trigonometric functions <math>y = \sin x</math>, <math>y = \cos x</math> and <math>y = \tan x</math>;</li> </ul> </li> </ul>	M7 M8 X
T6	<ul style="list-style-type: none"> <li>construct simple loci;</li> </ul>	M6
T6	<ul style="list-style-type: none"> <li>construct linear, quadratic and other functions from real-life problems and plot their corresponding graphs; and</li> </ul>	M5 M6 M7 M8
T6	<ul style="list-style-type: none"> <li>use growth and decay rates and display these graphically.</li> </ul>	M8
T6	<ul style="list-style-type: none"> <li>use index laws in algebra for multiplication and division of integer, fractional and negative powers;</li> </ul>	M6 M7 M8

	Geometry and Measures	Unit
T1	<ul style="list-style-type: none"> <li>· recall and use properties of:               <ul style="list-style-type: none"> <li>– angles at a point;</li> <li>– angles at a point on a straight line (including right angles);</li> <li>– perpendicular lines; and</li> <li>– opposite angles at a vertex;</li> </ul> </li> </ul>	M1
T1	<ul style="list-style-type: none"> <li>· understand and use the angle properties of triangles and quadrilaterals;</li> </ul>	M1
T1	<ul style="list-style-type: none"> <li>· recall the properties and definitions of special types of quadrilaterals, including square, rectangle, parallelogram, trapezium, kite and rhombus;</li> </ul>	M1
T1	<ul style="list-style-type: none"> <li>· understand congruence;</li> </ul>	M6
T1	<ul style="list-style-type: none"> <li>· distinguish between centre, radius, chord, diameter, circumference, tangent, arc, sector and segment;</li> </ul>	M1 M3
T1	<ul style="list-style-type: none"> <li>· use 2D representations of 3D shapes;</li> </ul>	M1
T1	<ul style="list-style-type: none"> <li>· understand and use metric units of measurement;</li> </ul>	M1
T1	<ul style="list-style-type: none"> <li>· use and interpret maps and scale drawings;</li> </ul>	M5
T1	<ul style="list-style-type: none"> <li>· interpret scales on a range of measuring instruments and recognise the inaccuracy of measurements;</li> </ul>	M5
T1	<ul style="list-style-type: none"> <li>· convert measurements from one unit to another; and</li> </ul>	M1
T1	<ul style="list-style-type: none"> <li>· solve problems involving length, weight, time, capacity and temperature.</li> </ul>	M1
T1	<ul style="list-style-type: none"> <li>· make sensible estimates of a range of measures;</li> </ul>	M1
T1	<ul style="list-style-type: none"> <li>· measure and draw lines and angles;</li> </ul>	M1
T1	<ul style="list-style-type: none"> <li>· draw triangles and other 2D shapes using a ruler and protractor;</li> </ul>	M1 M5
T1	<ul style="list-style-type: none"> <li>· calculate perimeters and areas of triangles and rectangles;</li> </ul>	M1
T1	<ul style="list-style-type: none"> <li>· calculate volumes of cubes and cuboids;</li> </ul>	M1

	Geometry and Measures	Unit
T2	<ul style="list-style-type: none"> <li>· understand and use the angle properties of parallel and intersecting lines;</li> </ul>	M1

T2	· calculate and use the sums of the interior and exterior angles of polygons;	M5 M6
T2	· understand <u>congruence</u> and similarity;	M6
T2	· use Pythagoras' theorem in 2D problems;	M2
T2	· understand and use bearings;	M6
T2	· find circumferences and areas of circles;	M1
T2	· calculate volumes of right prisms;	M2
T2	· find the mid-point and length of a line given in 2D co-ordinates;	M2
T2	· solve problems requiring calculations, including length, time, weight, capacity and temperature;	M1

	<b>Geometry and Measures</b>	Unit
T3	· use Pythagoras' theorem in 2D problems;	M2
T3	· calculate perimeters and areas of shapes made from triangles, rectangles and other shapes;	M2 M2 M3
T3	· understand and use the trigonometric ratios of sine, cosine and tangent to solve 2D and 3D problems;	M3

	<b>Geometry and Measures</b>	Unit
T4	· use Pythagoras' theorem in 3D problems;	M8
T4	· understand and use the sine and cosine rules to solve problems in 2D and 3D;	M8
T4	· calculate the area of a triangle using $\frac{1}{2} ab \sin C$ ;	M8
T4	· understand (and construct geometrical proofs using) circle theorems;	M4

	<b>Geometry and Measures</b>	Unit
T5	· recognise reflection and rotation symmetry of 2D shapes;	M5

T5	· describe and transform 2D shapes using single or combined rotations, reflections, translations, or enlargements by a positive scale factor;	M5
T5	· distinguish properties that are preserved under particular 2D transformations;	M5
T5	· understand the effect of enlargement on perimeter, area and volume of shapes and solids;	M6
T5	· understand and use compound measures;	M1 M2 M3
T5	· know and use imperial measures still in common use and their approximate metric equivalents;	M5
T5	· use a ruler and a pair of compasses to do constructions;	M6
T5	· calculate perimeters and areas of shapes made from triangles and rectangles;	M1 M2
T5	· construct loci;	M6
T5	· solve problems which may be set in context that require calculations including a range of measures, for example : length, area, volume, weight, time, temperature;	M1 M2

	<b>Geometry and Measures</b>	Unit
T6	· describe and transform 2D shapes using single or combined rotations, reflections, translations, or enlargements by a positive scale factor;	M7
T6	· use positive fractional and negative scale factors;	M7 M8
T6	· distinguish properties that are preserved under particular transformations;	M6
T6	· understand and use the effect of enlargement on perimeter area and volume of shapes and solids;	M7 M7 M8
T6	· solve mensuration problems that involve more complex shapes (including arc length and area of sector) and solids(including cones, spheres and frustums);	M3 M4
T6	· understand and use formula for perimeter, area and volume by considering dimensions;	X

	<b>Statistics and Probability</b>	Unit
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T1	· understand and use the statistical problem-solving process;	M1
T1	· understand and use the handling data cycle;	M1
T1	· design data-collection sheets, distinguishing between different types of data;	M1
T1	· extract data from printed tables and lists;	M1
T1	· design and use two-way tables for discrete and grouped data;	M1
T1	· produce charts and diagrams for various data types, including pie charts and frequency tables;	M1 M1
T1	· calculate median, mean, range and mode, and understand their uses;	M1
T1	· interpret a wide range of graphs and diagrams and draw conclusions; and	M1
T1	· look at data to find patterns and exceptions.	M1

	<b>Statistics and Probability</b>	Unit
T2	· identify possible sources of bias;	M1
T2	· design an experiment or survey;	M1
T2	· find median, mean, range, mode and modal class; and	M1
T2	· interpret and display information in a variety of ways, including scatter graphs, flow charts and (frequency polygons).	M1 M1 M2 M2 M2
T2	· recognise correlation and draw and/or use lines of best fit by eye, understanding what these lines represent;	M2
T2	· compare distributions and make inferences; and	M1 M3
T2	· use relevant statistical functions on a calculator.	

	Statistics and Probability	Unit
T3	<ul style="list-style-type: none"> <li>• calculate median, mean, range, quartiles and inter-quartile range, mode, and modal class; and</li> </ul>	M3
T3	<ul style="list-style-type: none"> <li>• construct cumulative frequency tables.</li> </ul>	M3
T3	<ul style="list-style-type: none"> <li>• construct and use the cumulative frequency curve; and</li> </ul>	M3 M3
T3	<ul style="list-style-type: none"> <li>• interpret and display information in a variety of ways, including box plots and stem and leaf diagrams.</li> </ul>	M3

	Statistics and Probability	Unit
T4	<ul style="list-style-type: none"> <li>• understand and use: <ul style="list-style-type: none"> <li>– sampling schemes;</li> <li>– histograms for grouped continuous data; and</li> <li>– frequency density; and</li> </ul> </li> </ul>	M4 M4
T4	<ul style="list-style-type: none"> <li>• use relevant statistical functions on a calculator or spreadsheet.</li> </ul>	

	Statistics and Probability	Unit
T5	<ul style="list-style-type: none"> <li>understand and use the vocabulary of probability and the probability scale;</li> </ul>	M5 M5 M5
T5	<ul style="list-style-type: none"> <li>understand and use estimates or measures of probability from theoretical models (including equally likely outcomes), and from relative frequency;</li> </ul>	M5 M5 M6
T5	<ul style="list-style-type: none"> <li>list all outcomes for single events, and for two successive events, in a systematic way and derive related probabilities;</li> </ul>	M5
T5	<ul style="list-style-type: none"> <li>identify different mutually exclusive outcomes and know that the sum of the probabilities of all these outcomes is 1; and</li> </ul>	M5
T5	<ul style="list-style-type: none"> <li>compare experimental data and theoretical probabilities.</li> </ul>	M6
T5	<ul style="list-style-type: none"> <li>understand that if they repeat an experiment, they may, and usually will, get different outcomes, and that increasing sample size generally leads to better estimates of probability and population characteristics.</li> </ul>	M6

	Statistics and Probability	Unit
T6	<ul style="list-style-type: none"> <li>know when to add or multiply two probabilities: if A and B are mutually exclusive, then the probability of A or B occurring is <math>P(A) + P(B)</math>, whereas if A and B are independent events, the probability of A and B occurring is <math>P(A) \times P(B)</math>; and</li> </ul>	M7 M8
T6	<ul style="list-style-type: none"> <li>use tree diagrams to represent outcomes of compound events, recognising when events are independent.</li> </ul>	M7 M8 M8