Maths Long Term Curriculum Map for Pupils in Key Stage 1,2 or 3

The knowledge and skills described in the National Curriculum have been mapped out across year groups and then divided in to the academic year.

A pupil working through the plan below from Autumn 1 in year 1 to Summer 2 in year 9 would have covered all aspects of the National Curriculum in a sequential, logical way.

Some of the individual objectives are started in one half term but then are ongoing through all of the rest of the year.

They are revisited through the various topics / concepts being taught

Teachers take this map and then use it to devise a sequence of learning activities over the half term.

Teachers start by considering the starting points of each of the pupils in their class group.

Given that we are teaching pupils with SEND or with an often challenging educational history there will be pupils who are chronologically older but are still working at the level of a much younger pupil.

Our teachers ensure that they plan lessons which will build on strong foundations then move forward through the map ensuring the learning is embedded in the memory of the individual pupils

For example, Some of our pupils may be chronologically year 7 but are working through the map at year 3.

They may also be working at year 3 in number but at year 5 in shape and space/

This map helps a teacher to plan lessons which meet the exact need of the individual pupils while teaching a similar topic to a whole class.

	Autumn 1 Number	Autumn 2 Shape/ Fractions	Spring 1 Time/Duration	Spring 2 Length/ Height	Summer 1 Mass/ Weight	Summer 2 Capacity/ Volume
1	Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number.					
	Counts, reads and writes number to 100 in numerals;					
	Given a number, identifies one more and one less.					
	Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least					
	Read and write numbers from 1 to 20 in numerals and words					
	Can practise counting, ordering and consider quantity, including solving simple concrete problems					
	Recognise place value in numbers beyond 20 by reading, writing, counting and comparing numbers up to 100 supported by objects and pictorial representations					

	Represents and uses number bonds and related subtraction facts within 20.				
	Recognise and create repeating patterns with objects and with shapes				
		Use + - and = signs Ongoing from Autumn 2			
			Add and subtract one digit and two digit numbers to 20 including 0 from Spring 1		
					Solve one step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher
					Makes connections between arrays, number patterns and counting in 2s, 5s and 10s
					Recognise find and name a half as 1 of 2 equal parts of an object, shape or quantity

					Recognise find and name a quarter as 1 of 4 equal parts of an object, shape or quantity	
				Solve one step problems that involve + and – using concrete objects and pictorial representations, and missing number problems		
		Recognises and names common 2-D and 3-D shapes, including: 1. 2D shapes [for example, rectangles (including squares), circles and triangles	Tells the time to the hour and half past the hour and draws the hands on a clock face to show these times.			
		Recognise and use language				

		relating to dates including days of the week, weeks , months and years				
		Recognises and names common 2-D and 3-D shapes, including: 2. 3D shapes [for example, cuboids (including cubes), pyramids and spheres.]	Compares, describes and solves practical problems for: 4. Time [for example, quicker, slower, earlier, later.]	Compares, describes and solves practical problems for:1, lengths and heights [for example, long/short, longer/shorter, tall/short, double/half].	Compares, describes and solves practical problems for: 2. Mass/weight [for example, heavy/light, heavier than, lighter than].	Compares, describes and solves practical problems for: 3. Capacity and volume [for example, full/empty, more than, less than, half, half full, quarter.]
	Describe position, direction and movement,	Describe position, direction and movement,				

	including whole, half turns Left right Top middle bottom On top of, in front of Forward, Backward inside outside Above below between	including whole, half turns Left right Top middle bottom On top of, in front of Forward, Backward inside outside Around, near, close and far				

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Year Group	Autumn 1 Number	Autumn 2 Shape/ Fractions	Spring 1 Time/ Duration	Spring 2 Length/ Height	Summer 1 Mass/ Weight	Summer 2 Capacity/ Volume
	Compares and orders numbers from 0 up to 100.					
	Recognise the place value of each digit in a 2 digit number (10s 1s)					
	Read and write numbers to at least 100 numerals and words					
	Recalls and uses multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.					
2		Solves problems with addition and subtraction: 1. Uses concrete objects and pictorial representations, including those involving shape	Solves problems with addition and subtraction: 1. Uses concrete objects and pictorial representations, including those involving time	Solves problems with addition and subtraction: 1. Uses concrete objects and pictorial representations, including those	Solves problems with addition and subtraction: 1. Uses concrete objects and pictorial representations, including those	Solves problems with addition and subtraction: 1. Uses concrete objects and pictorial representations, including those

				involving measures.	involving quantities.	involving quantities.
	Counts in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward.	Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in context.				
	Uses <, > and = signs correctly. Comparing numbers to 100	Compares and sorts common 2- D and 3-D shapes and everyday objects.	Uses mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishes	Recognises, finds, names and writes fractions 1/3, ¼, 2/4, and ¾ of length.	Recognises, finds, names and writes fractions 1/3, ¼, 2/4, and ¾ of a quantity, length, shape set of objects or quantity	
	Uses place value and	Recognises, finds, names and				Asks and answers

	number facts to solve problems.	writes fractions 1/3, ¼, 2/4, and ¾ of shape and a set of objects. Write simple fractions eg ½ of 6 = 3 and recognise ½ = 2/4	between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti- clockwise).			questions about totalling and comparing categorical data.
	Solves problems with addition and subtraction: 1. Uses concrete objects and pictorial					

	representations, including those involving numbers.					
	Recalls and uses addition and subtraction facts to 20 and 100: 1. fluently up to 20.					
	Solves simple problems in a practical context involving addition and subtraction of money of the same unit,					

	including giving change. Applies an increasing knowledge of mental and written methods.					
	Partition numbers in different ways eg 23= 20 +3 and 23 = 10 +13 to support subtraction					
	Addition of 2 numbers can be done in any order					

	(commutative) and subtraction of 1 number from another cannot					
	Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems					

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	Money including p and £ Find combinations of coins to make set amounts Make equal amounts of money	Identify and describe the properties of 2 D shapes including number of sides, line of symmetry in a vertical line Identify 3D shapes using vertices, number of edges and faces	Choose and use the appropriate standard units to estimate and measure Tell time to nearest 5 mins , quarter past Draw hands on clock Know the number of mins in and hour and hours in a day	Choose and use the appropriate standard units to estimate and measure m, cm, Using scales thermometers and measuring vessels Compare and order using ≤ ≥ and = length	Choose and use the appropriate standard units to estimate and measure kg, g, Using scales thermometers and measuring vessels Compare and order using ≤ ≥ and = quantity	Choose and use the appropriate standard units to estimate and measure l and ml Using scales thermometers and measuring vessels Compare and order using ≤ ≥ and = quantity

			Compare and sequence intervals of time			
	Calculate mathematical statements for multiplication and division within multiplication tables and write them using x ÷ and = signs				Interpret and construct simple pictograms, tally charts, block diagrams and tables	Interpret and construct simple pictograms, tally charts, block diagrams and tables
	Show that multiplication of 2 numbers can be done in any order commutative				Ask and answer questions by counting the number of objects in each category and sorting the	Ask and answer questions by counting the number of objects in each category and sorting the

	and division of 1 number cannot				categories by quantity	categories by quantity
					Ask and answer questions about totalling and comparing categorical data	Ask and answer questions about totalling and comparing categorical data

Year Group	Autumn 1 Number	Autumn 2 Shape/ Fractions	Spring 1 Time/ Duration	Spring 2 Length/ Height	Summer 1 Mass/ Weight	Summer 2 Capacity/ Volume
3	Counts from 0 in multiples of four, eight, 50 and 100.					
	Multiplication facts for 3,4 and 8 tables					
	Can work out if a given number is greater or less than 10 or 100.					
	Recognises the place value of each digit in a three-digit number (hundreds, tens, and ones).					
	Solves number problems and practical problems involving these ideas. Write and calculate mathematical statements for x and ÷ for tables they know including 2 digit numbers Mental maths and formal written Adds and subtracts numbers mentally, including: 1: a three-digit number and ones.					

	Adds and subtracts numbers mentally, including: 2: a three-digit number and tens.
	Adds and subtracts numbers mentally, including: 3: a three-digit number and hundreds.
	Recalls and uses multiplication and division facts for the multiplication tables three; four; and eight.
	Writes and calculates mathematical statements for multiplication and division using the multiplication tables that are known including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.

	Adds and subtracts amounts of money to give change, using both £ and p in practical contexts.	Add and subtract numbers with up to 3 digits using formal written methods of columnar addition and subtraction				
		Estimate the answer to a calculation and use inverse operations to check answers				
		Solve problems using number facts, place value, and more complex addition and subtraction				

		Counts up and down in tenths; recognises that tenths arise from dividing an object into 10 equal parts and in dividing one- digit numbers or quantities by 10.	Tells and writes the time from an analogue clock and 12-hour and 24-hour clocks.	Measures, compares, adds and subtracts lengths (m/cm/mm).	Measures, compares, adds and subtracts mass (kg/g).	Measures, compares, adds and subtracts volume/ capacity (l/ml).
		Recognises, finds and writes fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.	Identifies right angles, recognises that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identifies whether angles are greater than or less than a right angle.			Interprets and represents data using bar charts, pictograms and tables.

		Recognises and shows, using diagrams, equivalent fractions with small Denominators.				

Year Group	Autumn 1 Number	Autumn 2 Shape/ Fractions	Spring 1 Time/ Duration	Spring 2 Length/ Height	Summer 1 Mass/ Weight	Summer 2 Capacity/ Volume

4	Counts in multiples of six, seven, nine, 25 and 1,000.
	Counts backwards through zero to include negative numbers.
	Orders and compares numbers beyond 1,000.

	Rounds any number to the nearest 10, 100 or 1,000.					
	Solves addition and subtraction two-step problems in context, deciding which operations and methods to use and why.					
	Recalls multiplication and division facts for multiplication tables up to 12 x 12.					
		Recognises and shows, using diagrams, families of common equivalent fractions.		Converts between different units of measure e.g. kilometre to metre.		Converts between different units of measure e.g. litres to millilitres.

	Counts up and down in hundredths; recognises that hundredths arise when dividing an object by 100 and dividing tenths by 10.	Compares and classifies geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.	Converts between different units of measure e.g. hour to minute.		Converts between different units of measure e.g. grams to kilograms.	Solves comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.

	Rounds decimals with one decimal place to the nearest whole number. Compare numbers with the same number of decimal places up to 2 decimal places	Identifies lines of symmetry in two dimensional shapes presented in different orientations.				
	Solves simple measure and money problems involving fractions and decimals to two decimal places.	Plots specified points and draws sides to complete a given polygon.				

Year Group	Autumn 1 Number	Autumn 2 Shape/ Fractions	Spring 1 Time/ Duration	Spring 2 Length/ Height	Summer 1 Mass/ Weight	Summer 2 Capacity/ Volume
5	Reads, writes, orders and compares numbers to at least 1,000,000 and determines the value of each digit.					
	Read Roman numerals to 1000					
	Powers of 10 steps for any given number up to 1000000					
	Round any numbers to 1000000 to nearest 10.100.1000. 10000, 100000					

	Interprets negative numbers in context, counts forwards and backwards with positive and negative whole numbers including through zero.					
	Adds and subtracts whole numbers with more than four digits, including using formal written methods (columnar addition and subtraction).					
	Numbers mentally with increasingly large numbers (eg 12,462 - 2,300 = 10,162).					
	Identifies multiples and factors including finding all factor pairs of a number and common factors of two numbers.					
	Identify multiples and factors, including finding all factor pairs of a number and common factors of 2 numbers					
	Know and use the vocab of prime numbers , prime factors and composite numbers					

	Establish whether a number up to 100 is prime and recall prime numbers up to 19					
	Divide numbers up to 4 digits by a one digit number using formal written method					
	Solves problems involving multiplication and division including using a knowledge of factors and multiples, squares and cubes.					

		Recognise percentage symbol and understand that per cent relates to number parts per 100 , write percentages as a fraction with denominator 100 and as a decimal fraction				
		Compares and orders fractions whose denominators are all multiples of the same number.				

		Solves problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. Ongoing from Autumn 2				
		Reads and writes decimal numbers as fractions eg 0.71 = 71/100.	Draws given angles and measures them in degrees (0).	Measures and calculates the perimeter of composite rectilinear shapes in centimetres and metres.	Converts between different units of metric measure (eg gram and kilogram).	Converts between different units of metric measure (eg litre and millilitre).
		Reads, writes, orders and compares numbers with up to three decimal places.				

		Solves problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25.		Calculates and compares the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2).		Completes, reads and interprets information in tables, including timetables.

		Distinguishes between regular and irregular polygons based on reasoning about equal sides and angles.		Converts between different units of metric measure (eg centimetre and metre; centimetre and millimetre).		
		Compare and classify geometric shapes including quadrilaterals and triangles				

		Identify acute and obtuse angles Compare and order angles up to 2 right angles by size				
		Identify lines of symmetry in 2 D shapes Complete a simple symmetric figure with respect to a specific line of symmetry				

		Describe positions on a 2 D grid as coordinates in the first quadrant Describe movements between positions as translations of a given unit to the left /right and up/ down Plot specified points and draw sides to complete a given polygon				

		Angles at a ppint and 1 whole turn 360° Straight line and half turn 180° Other multiples of 90° use properties of rectangles to deduce related facts and find missing lengths and angles Distinguish between regular and irregular			Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs Solve comparison , sum and difference problems using information presented in bar charts, pictograms	

		polygons based on reasoning about equal sides and angles			tables and other graphs including timetables	
		Identify describe and represent the position of a shape following reflection or translation using appropriate language and know the shape has not changed				
		Draw 2 D shapes using given dimensions				

		Recognise, describe and build simple 3D shapes including making nets				
		Compare and classify geometric shapes based on properties and sizes and find unknown angles in any triangles quadrilaterals and regular polygons				

		Illustrate and name parts of circles including radius, diameter and circumference and know that the diameter is twice the radius Recognise angles where they meet at a point , are on a straight line or are vertically opposite and Find missing angles				

		Describe positions on the full coordinate grid. All four quadrants Draw and translate simple shapes on the coordinate plane and reflect them in the axis				

Year Group	Autumn 1 Number	Autumn 2 Shape/ Fractions	Spring 1 Time/ Duration	Spring 2 Length/ Height	Summer 1 Mass/ Weight	Summer 2 Capacity/ Volume
6	Rounds any whole number to a required degree of accuracy.					
	Uses negative numbers in context and calculates intervals across zero.					
	Multiplies multi-digit numbers up to four digits by a two-digit whole number using the formal written method of long multiplication.					
	Divides numbers up to four digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context.					
	Solves addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.					
	Uses estimation to check answers to calculations and determines, in the context of a problem, an appropriate degree of accuracy.					
	Uses written division methods in cases where the answer has up to two decimal places.					
	Solves problems which require answers to be rounded to specified degrees of accuracy.					

		Recalls and uses equivalences between simple fractions, decimals and percentages, including in different contexts.	Interprets pie charts and line graphs and uses these to solve problems
		Solves problems involving the calculation of percentages e.g. of measures and calculations such as 15 per cent of 360, and the use of percentages for comparison.	Revision and revisiting key concepts in preparation for transition

	Uses simple formulae.	Solves problems involving unequal sharing and grouping using knowledge of fractions and multiples.				
	Calculates and interprets the mean as an Average.	Compares and classifies geometric shapes based on their properties and sizes and finds unknown angles in any triangles, quadrilaterals and regular polygons.				

	Use simple algebra formulae Generate and describe linear number sequences Express missing number problems algebraically Find pairs of numbers that satisfy an equation with 2 unknowns	Draws and translates simple shapes on the coordinate plane and reflects them in the axes.				

	Enumerate possibilities of combinations of 2 variables					
		Use common factors to simplify fractions Use common multiples to express fractions in the same denomination				

		Compare and order fractions including fractions ≥1 Add and subtract fractions with different denominators and mixed numbers using the concept of equivalent fractions				

		Multiply simple pairs of proper fractions, writing the answer in simplest form Divide fractions by whole numbers Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction				

		Solve problems for similar shapes where the scale factors is known or can be found Solve problems involving unequal sharing or grouping using knowledge of fractions and multiples	Solve problems involving calculation of percentages	Solve problems involving relative sizes of 2 quantities where missing values can be found by using integer multiplication and division facts		

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Year Group	Autumn 1 Number	Autumn 2 Geometry and measures	Spring 1 Proportion, Ratios and Rates of change	Spring 2 Algebra (2 half terms)	Summer 1 Algebra (2 half terms)	Summer 2 Probability and statistics
7	Understand and use place value for decimals, measures and integers of any size.	Derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms, trapezia, volume of cuboids	Change freely between related standard units (for example time, length, area, volume/capacity, mass)	Use and interpret algebraic notation, including: ab in place of a x b, 3y in place of y+y+y and 3 x y, a^2 in place of a x a, a^3 in place of a x a x	Use and interpret algebraic notation, including: ab in place of a x b, 3y in place of y+y+y and 3 x y, a^2 in place of a x a, a^3 in place of a x a x	Understand that the probabilities of all possible outcomes sum to 1.

		(including cubes) and other prisms (including cylinders).		a, a^2b in place of a x a x b, a/b in place of a÷b, coefficients written as fractions rather than as decimals, brackets.	a, a^2b in place of a x a x b, a/b in place of a÷b, coefficients written as fractions rather than as decimals, brackets.	Construct and interpret appropriate tables, bar charts, pie charts and pictograms for categorical data, and vertical line (or bar) charts for grouped and ungrouped numerical data.
	Use the concept and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest	Derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures (e.g. equal lengths and angles) using appropriate	Use scale factors, scale diagram and maps	Understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors.	Understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors.	

	common factor, lowest common multiple, prime factorisation, including using product notation, and the unique factorisation property.	language and technologies.				
	Use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals	Identify properties of and describe the results of translations, rotations and reflections applied to given figures.	Use ratio notation, including reduction to simplest form.	Simplify and manipulate algebraic expressions to maintain equivalence by: collecting like terms, multiplying a single term over	Simplify and manipulate algebraic expressions to maintain equivalence by: collecting like terms, multiplying a single term over	

				a bracket, taking out common factors, expanding products of two or more binomials.	a bracket, taking out common factors, expanding products of two or more binomials.	
	Recognise and use relationships between operations, including inverse operations.	Apply the properties of angles at a point on a straight line, vertically opposite angles.	Divide a given quantity into two parts in a given part: part or part: whole ratio; express the division of a quantity into two parts as a ratio.	Use algebraic methods to solve linear equations in one variable (including all forms that need rearrangement).	Use algebraic methods to solve linear equations in one variable (including all forms that need rearrangement).	
	Use standard units of mass, length, time money and	Derive and use the sum of angles in a triangle and use	Understand that a multiplicative relationship between two	Work with coordinates in all four quadrants.	Work with coordinates in all four quadrants.	

	other measures, including with decimal quantities.	it to deduce the angle sum in any polygon, and to derive properties of regular polygons.	quantities can be expressed as a ratio or a fraction.			
	Round numbers and measures to an appropriate degree of accuracy (eg. to a number of decimal places or significant	Use the properties of faces, surfaces, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres to solve problems in 3D.				

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Year Group	Autumn 1 Number	Autumn 2 Geometry and measure	Spring 1 Proportion, ratio and rates of change	Spring 2 Algebra (2 half terms)	Summer 1 Algebra (2 half terms)	Summer 2 Probability and statistics
8	Order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols =, ≠≤≥, <>	Calculate and solve problems involving: perimeters of 2D shapes (including circles), areas of circles and composite shapes.	Express one quantity as a fraction of another, where the fraction is less than 1 and greater than 1.	Substitute numerical values into formulae and expressions, including scientific formulae.	Substitute numerical values into formulae and expressions, including scientific formulae.	Record, describe and analyse the frequency of outcomes of simple probability experiments involving randomness, fairness, equally and unequally likely outcomes, using
	Use the four operations,	Draw and measure line	Relate the language of	Understand and use standard	Understand and use standard	

	including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative.	segments and angles in geometric figures, including interpreting scale drawings.	ratios and the associated calculations to the arithmetic of fractions and to linear functions.	mathematical formulae; rearrange formulae to change the subject.	mathematical formulae; rearrange formulae to change the subject.	appropriate language and the 0-1 probability scale. Describe interpret and compare observed distributions of a single variable through: appropriate graphical representation involving discrete,
	work interchangeably with terminating decimals and their corresponding fractions (such	use the standard conventions for labelling the sides and angles of triangle ABC, and know and use the criteria	Solve problems involving percentage change, including: percentage increase, decrease and	Model situations or procedures by translating them into algebraic expressions or formulae and by using graphs.	Model situations or procedures by translating them into algebraic expressions or formulae and by using graphs.	

	as 3.5 and 7/2 or 0.375 and 3/8).	for congruence of triangles.	original value problems and simple interest in financial mathematics.			continuous and grouped data; and appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers).
	define percentage as number of parts per hundred, interpret percentages and percentage changes, as a fraction or a decimal, interpret these multiplicatively, express one quantity as a percentage of	identify and construct congruent triangles, and construct similar shapes by enlargement, with and without coordinate grids.		Recognise, sketch and produce graphs of linear and quadratic functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane.	Recognise, sketch and produce graphs of linear and quadratic functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane.	

	another, compare two quantities, using percentages, and work with percentages greater than 100%					
	use a calculator and other technologies to calculate results accurately and then interpret them appropriately	apply angle facts, triangle congruence, similarity and properties of quadrilaterals to derive results about angles and sides, including Pythagoras Theorem, and		Generate terms of a sequence from either a term-to-term or a position-to-term rule. Recognise arithmetic sequence and find the nth term.	Generate terms of a sequence from either a term-to-term or a position-to-term rule. Recognise arithmetic sequence and find the nth term.	

		use known results to obtain simple proofs.				

Year Group	Autumn 1 Number	Autumn 2 Geometry and measures	Spring 1 Proportion, ratios and rates of change	Spring 2 Algebra (2 half terms)	Summer 1 Algebra (2 half terms)	Summer 2 Probability and statistics
9	Use integer powers and associated real roots (square, cube and higher), recognise powers of	Derive and use the standard ruler and compass constructions (perpendicular bisector of the line segment,	Solve problems involving direct and inverse proportion, including graphical and algebraic representations.	Interpret mathematical relationships both algebraically and graphically.	Interpret mathematical relationships both algebraically and graphically.	Enumerate sets and unions/intersections of sets systematically, using tables grids and Venn diagrams.

	2,3,4,5 and distinguish between exact representations of roots and their decimal approximations	constructing a perpendicular to give a line from/at a given point, bisecting a given angle); recognise and use the perpendicular distance from a point to a line from the shortest distance to the line.				Generate theoretical sample spaces for single and combined events with equally likely, mutually exclusive outcomes and use these to calculate theoretical probabilities.
		describe, sketch and draw using conventional terms and	use compound units such as speed, unit pricing and	Reduce a given linear equation in two variables to the standard	Reduce a given linear equation in two variables to the standard	Describe simple mathematical relationships between two

		notations: points lines, parallel lines, right angles, regular polygons, and other polygons that are reflectively and rotationally symmetric.	density to solve problems.	form y=mx + c; calculate and interpret gradients and intercepts of graphs such as linear equations, numerically, graphically and algebraically.	form y=mx + c; calculate and interpret gradients and intercepts of graphs such as linear equations, numerically, graphically and algebraically.	variables (bivariate data) in observational and experimental contexts and illustrate using scatter graphs.
		understand and use the relationship between parallel lines and alternate and corresponding angles.		Use linear and quadratic graphs to estimate values of y for given values of x and vice versa and to find approximate	Use linear and quadratic graphs to estimate values of y for given values of x and vice versa and to find approximate	

				solutions of simultaneous linear equations.	solutions of simultaneous linear equations.	
		Use Pythagoras' Theorem and trigonometric ratios in similar triangles to solve problems involving right angled triangles.		Find approximate solutions to contextual problems from given graphs of a variety of functions, including piece-wise linear, exponential and reciprocal graphs.	Find approximate solutions to contextual problems from given graphs of a variety of functions, including piece-wise linear, exponential and reciprocal graphs.	
		interpret mathematical relationships		Recognise geometric sequences and	Recognise geometric sequences and	

		both algebraically and geometrically.		appreciate other sequences that arise.	appreciate other sequences that arise.	