

YEAR 7

The aims of this curriculum are to:

- Ensure the building blocks of fluency, problem solving and reasoning are at the heart of the curriculum.
- Develop students' understanding of the knowledge required to become competent mathematicians.
- Ensure that all students, regardless of their ability or starting point, develop the mathematical knowledge they need, so that they can reason mathematically and solve problems of varying difficulty.
- Develop high aspirations, to ensure that all students are confident and have the resilience to apply their knowledge and skills in any context.
- Ensure all students are competent readers and that they understand mathematical terminology.

Below is the intent of this curriculum:

Term	Topics	Knowledge covered	Skills developed	Assessment
Autumn 1	Algebraic Thinking	Sequences	• Describe and continue sequences in diagram and number forms, both linear and non-linear • Compare numerical and graphical forms	Formative assessment • Use as part of every lesson to assess students' level of understanding • Questioning, verbal feedback, marking in the moment as well as other strategies
		Understand and use algebraic notation	• Use single function machines and series of two function machines with number, bar models and letters • Use and interpret algebraic notation • Understand and use inverse operations • Form and substitute into expressions, including to generate sequences • Represent functions graphically	

		Equality and equivalence	- Understand equality - Use fact families - Form and solve one-step equations - Understand equivalence of algebraic expressions - Collect like terms	Periodic assessments - Standardised and differentiated assessments testing recent learning at the end of each block - Written personalised feedback from teacher - Students given time to reflect and improve
		Additional Higher Content Links/Interleaving	Efficient use of calculators and informal estimation	
Autumn 2	Place Value and Proportion	Place value and ordering integers and decimals	- Recognise and use integer place value up to one billion - Recognise and use decimal place value to at least hundredths - Work out intervals and use number lines - Compare and order numbers - Use ordered lists to find the range and the median of a set of numbers - Round numbers to positive powers of ten - Round numbers to one significant figure	Summative assessment Standardised and differentiated assessments testing overall learning of the term Detailed QLA to inform teaching and revisiting of areas of development
		Fraction, decimal and percentage equivalence	- Represent tenths and hundredths on diagrams and number lines - Interchange between fractions, decimals and percentages for multiple of one tenth and one quarter - Interpret pie charts - Equivalent fractions - Convert between other fractions, decimals and percentages	

Spring 1		Additional Higher Content	- Explore and use standard index form - Explore fractions above one - Convert multiples of one eighth to decimals and percentages	
		Links/Interleaving	- Solve equations with fractions, including fractional coefficients - Consider sequences with fractions	
	Application of Number	Addition and subtraction	- Use mental and formal written methods of addition with integers and decimals, including choosing the most appropriate method - Solve problems in the context of perimeter, money and frequency trees and tables - Solve problems in the context of bar charts and line charts	
		Multiplication and division	- Multiply by 10, 100 and 1000, 0.1 and 0.01, and convert metric units - Use mental and formal written methods of multiplication and division - Find the HCF and LCM of small numbers - Evaluate area of triangles, rectangles and parallelograms - Find the mean of a set of numbers - Find simple fractions and percentages of amounts - Begin to use the order of operations	
		Fractions and percentages of amounts	Work out simple fractions and percentages of amounts, with and without a calculator	

Spring 2		Additional Higher Content	- Explore addition of numbers given in standard form - Evaluate the area of a trapezium - Find the HCF and LCM of algebraic expressions - Find areas involving algebraic expressions - Use fractions greater than 1	
		Links/Interleaving	Choosing when to use mental, written or calculator methods	
	Directed Number and Fractional Thinking	Directed number	- Order directed numbers, both in contextualised and abstract situations - Revisit four operations to include directed number - Use a calculator with directed number - Solve two-step equations (with and without a calculator) - Use the order of operations	
		Adding and subtracting fractions	- Represent tenths and hundredths on diagrams and number lines - Convert mixed numbers and improper fractions - Add and subtract fractions with: the same denominator, one denominator as a multiple of the other and different denominators - Add and subtract fractions and decimals	

		Additional Higher Content	- Negative square roots - Higher powers	
		Links/Interleaving	Inequality number lines	
Summer 1	Lines and Angles	Construction and measuring	- Understand and use letter and labelling notation for lines and angles - Draw and measure lines and angles accurately - Classify angles - Identify and draw parallel and perpendicular lines - Recognise types of triangle, quadrilateral and other polygons - Construct triangles given SSS, SAS, ASA - Draw and interpret pie charts	
		Geometric reasoning	- Calculate and use angles at a point, angles on a straight line and vertically opposite angles - Calculate missing angles in triangles and quadrilaterals	
		Additional Higher Content	- Understand and use parallel lines rules - Understand and use the sum of angles in any polygon - Derive simple proofs using angles and rules	
		Links/Interleaving	- Revisit simplifying and perimeter in polygons - Form and solve equations in geometric settings	

			Revisit mental and formal methods of addition and subtraction including with decimals	
Summer 2	Reasoning with Number	Developing number sense	- Mental arithmetic strategies - Use known factors to derive other facts - Evaluate an algebraic expression given a related fact - Use estimation	
		Sets and probability	- Understand and use set notation - Draw and interpret Venn diagrams - Understand and use the language of probability - Calculate the probability of a single event - Use the fact that the sum of probabilities of an event is 1	
		Prime numbers and proof	- Recognise prime, square and triangle numbers - Express a number as a product of prime factors - Powers and roots - Make and test conjectures - Understand and use counterexamples	
		Additional Higher Content Links/Interleaving	- Understand and use the complement of a set - Use prime factors to find HCFs and LCMs - Revisit FDP, equivalence and simple FDP addition and subtraction - Revisit factors and multiples, both numerically and algebraically	

YEAR 8

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- Develop high aspirations, to ensure that all students are confident and have the resilience to apply their knowledge and skills in any context.
- Ensure all students are competent readers and that they understand mathematical terminology.

Below is the intent of this curriculum:

Term	Topics	Knowledge covered	Skills developed	Assessment
Autumn 1	Proportional Reasoning	Ratio and scale	• Understand ratio and its link to multiplication • Use ratio notation • Reduce ratios to simplest form • Solve ratio problems • Calculate the circumference of a circle	Formative assessment • Use as part of every lesson to assess students' level of understanding. • Questioning, verbal feedback, marking in the moment as well as other strategies
		Multiplicative change	• Use scale factors, linking to ratio, to solve simple direct proportion problems • Convert between currencies, including using graphs • Draw and interpret scale diagrams and maps	
		Multiplying and dividing fractions	• Multiply and divide a fraction by an integer • Multiply and divide a fraction by a fraction • Understand and use the reciprocal	Periodic assessments

Autumn 2	Representations	Additional Higher Content	- Express a ratio in the form 1:n - Explore direct proportion graphs - Multiply and divide mixed numbers - Multiply and divide simple algebraic fractions	- Standardised and differentiated assessments testing recent learning at the end of each block - Written personalised feedback from teacher - Students given time to reflect and improve
		Links/Interleaving	- Revisit area - Revisit equations - Revisit converting improper fractions and mixed numbers - Link to fractions of an amount	
		Working in the Cartesian plane	- Plot and interpret straight line graphs - Understand and use the equation of a straight line - including lines parallel to the axes - Make links between direct proportion and straight lines of the form $y=kx$ - Model situations by translating them into expressions, formulae and graphs	
		Representing data	- Draw and interpret scatter graphs - Understand correlation - Draw and use lines of best fit - Understand grouped and ungrouped, discrete and continuous data - Design and use one and two-way tables	
		Tables and probability	- List outcomes using sample space diagrams for one and two events - Find probabilities using tables and Venn diagrams	Summative assessment - Standardised and differentiated assessments testing overall learning of the term - Detailed QLA to inform teaching and revisiting of areas of development

Spring 1	Algebraic Techniques	Additional Higher Content	- Find the mid-point of a line segment - Explore gradient - Explore non-linear graphs - Use the product rule for counting	
		Links/Interleaving	- Revisit calculation with directed number - Link to solving one and two-step linear equations - Revisiting Venn diagrams and set notation - Links to representing data and using graphs in other areas of the curriculum	
		Brackets, equations and inequalities	- Expand, and factorise into single brackets - Form and use expressions, formulae and identities - Form and solve equations and inequalities with and without brackets - Distinguish between equations, expressions, formulae and identities	
		Sequences	Generate sequences using more complex rules, e.g. with brackets and squared terms, both in words and algebraically	
		Indices	- Form expressions using indices - Understand and use the addition and subtraction rules	

Spring 2	Developing Number	Additional Higher Content	- Expand a pair of binomials - Solve equations and inequalities with unknowns on both sides - Find the rule for the nth term of a linear sequence - Explore powers of powers	
		Links/Interleaving	- Revisit the use of directed number - Solve equations, set in the context of earlier contexts – shapes, angles, probability, ratio etc.	
		Fractions and percentages	- Develop understanding of fractions, decimals and percentages - Evaluate percentage increases and decreases - Use multipliers to solve percentage problems - Express a number as a percentage of another	
		Standard index form	- Convert between numbers in ordinary and standard form - Compare numbers given in standard form - Calculate with numbers given in standard form, with and without a calculator	
		Number sense	- Develop mental strategies - Convert between metric measures and units - Estimation, including rounding to a given number of decimal places - Use the order of operations	

Summer 1	Developing Geometry	Additional Higher Content	- Finding the original given any percentage - Understand and use surd notation - Understand and use negative and simple fractional indices - Convert between units of area and volume - Use error interval notation	
		Links/Interleaving	- Revisit fraction, decimal and percentage equivalence - Revisit formal methods for calculation, for integers and fractions - Compare and use ratios on the context of FDP	
		Angles in parallel lines and polygons	- Review Y7 angle rules - Understand and use parallel lines and angles - Revisit geometric notation - Work out angles in special quadrilaterals - Find and use the sum of interior and exterior angles of a polygon - Prove simple geometric facts	
		Area of trapezia and circles	- Review area of shapes covered in Y7 - Calculate the area of a trapezium - Calculate the area of a circle, and the area of parts of a circle - Use significant figures - Calculate the area of compound shapes	
		Line symmetry and reflection	- Recognise line symmetry in polygons and other shapes - Reflect shapes in horizontal, vertical and diagonal lines	

Summer 2		Additional Higher Content	- Perform standard constructions including perpendiculars - Understand and use the properties of diagonals of quadrilaterals	
		Links/Interleaving	- Revisit forming and solving equations - Revisit properties of shapes - Revisit equations of straight lines	
	Reasoning with Data	The data handling cycle	- Understand and use primary and secondary sources of data - Collect data, including using questionnaires - Interpret and construct statistical diagrams, including multiple bar charts - Construct and interpret pie charts - Compare distributions using charts - Identify misleading graphs	
		Measures of location and dispersion	- Revisit the median and mean, including finding the total given the mean - Find the mean of grouped data - Work out the mode and modal class - Choose the appropriate average - Comparing distributions using measures	
		Additional Higher Content	- Find unknown data values given the mean or changes in the mean - Explore histograms for unequal groups - Find the median from a table of values	
		Links/Interleaving	- Revisit finding the range - Use algebraic substitution to form lists for averages and the range - Links to data collection and representation in other areas of the curriculum.	

YEAR 9

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Term	Topics	Knowledge covered	Skills developed	Assessment
Autumn 1	Reasoning with Algebra	Straight line graphs	• Interpret straight line graphs • Find and use the equation of a straight line • Reduce equations to the form $y=mx+c$ • Compare linear sequences and finding the rule for the nth term	Formative assessment • Use as part of every lesson to assess students' level of understanding • Questioning, verbal feedback, marking in the moment as well as other strategies Periodic assessments • Standardised and differentiated
		Forming and solving equations	• Revisit and extend to equations and inequalities with unknowns on both sides using all previous contexts: angles, probability, area etc. • Change the subject of a formula	
		Testing conjectures	• Test conjectures in a wide range of contexts e.g. Sums and products of odd and even numbers Is a given number in a sequence? Is this shape? Are these lines parallel? What would happen if?	

Autumn 2		Additional Higher Content	- Solve a pair of simultaneous equations using graphical methods - Change the subject of a complex formula - Explore the gradients of perpendicular lines - Expand three binomials	assessments testing recent learning at the end of each block - Written personalised feedback from teacher - Students given time to reflect and improve Summative assessment - Standardised and differentiated assessments testing overall learning of the term - Detailed QLA to inform teaching and revisiting of areas of development
	Constructing in 2 and 3 Dimensions	Links/Interleaving	- Link equations of graphs to solving equations - Revisit key topics through equations - Review use of brackets - Review geometric properties and rules	
		Three-dimensional shapes	- Understand the language of faces, edges and vertices - Know the names of common prisms and non-prisms - Identify 2-D shapes within 3-D shapes - Work out the volume and surface area of cuboids and cylinders - Work out the volume of any prism - Work out the missing lengths given area and/or volume	
		Constructions and congruency	- Construct 3-d shapes from nets, and construct the net of a given 3-d shape - Construct and use scale drawings - Construct perpendiculars and bisectors - Understand congruency - Exploring congruency via construction	
		Additional Higher Content	- Explore volume of cones, spheres and complex shapes - Work out the surface area of any prism - Explore the locus of a path	
		Links/Interleaving	- Revisit estimation - Revisit rounding to the nearest integer, decimal places, significant figures	

Spring 1			Revisit unit conversions, including area and volume units	
	Reasoning with Number	Numbers	- Revisit types of number – extend to include rational and real numbers - Revisit fraction arithmetic - Extend knowledge of HCF and LCM - Revisit standard form	
		Using percentages	- Revisit percentage increase and decrease - Use percentages over 100% - Find percentage changes - Use multipliers in a variety of contexts - Solve 'reverse percentage' problems	
		Maths and money	Explore financial mathematics including: Bills and bank statements Interest Unit pricing (best buys)	
		Additional Higher Content	Work with repeated percentage change	
		Links/Interleaving	- Add and subtract fractions (lowest common denominator) - Working out fractions of amounts - FDP equivalence	

Spring 2			Ratio	
	Reasoning with Geometry	Deduction	- Revisit angles rules, including within special quadrilaterals - Find angles using algebraic methods - Use chains of reasoning to evaluate angles	
		Rotation and translation	- Identify the order of rotational symmetry of a shape - Find the result of rotating shapes - Translate points and shapes by a given vector - Understand variance and invariance in the context of transformations	
		Pythagoras' theorem	- Identify the hypotenuse of a right-angle triangle - Determine whether a triangle is right-angled - Calculate missing sides in right-angled triangles	
		Additional Higher Content	- Develop more complex geometrical proofs - Find the result of a series of transformations - Explore proofs of Pythagoras' theorem - Use Pythagoras' theorem in 3-D shapes	
		Links/Interleaving	- Revisit fractions and directed number in the context of rotation - Compare and contrast rotational symmetry with line symmetry - Identify 2-D and 3-D shapes - Link constructions and geometric reasoning	

Summer 1	Reasoning with Proportion	Enlargement and similarity	• Enlarge shapes by a positive scale factor, including from a given point • Calculate the lengths of missing sides in similar shapes	
		Solving ratio and proportion problems	• Direct proportion problems and graphs • Conversion graphs • Solve ratio problems given the whole or a part • Simple inverse proportion • Unit pricing problems 'best buys'	
		Rates	• Work with speed, distance, time • Solve problems involving density • Work with compound units	
		Additional Higher Content Links/Interleaving	• Enlarge shapes by a negative scale factor • Similar triangles – exploring ratios in right-angled triangles • Inverse proportion graphs • Converting compound measures • Links to ratio notation • Revisit circumference • Revisit $y=mx+c$ • Revisit unit pricing	

Summer 2	Representations and revision	Probability	- Relative frequency - Expected number of outcomes - Independent events	
		Algebraic representation	- Drawing and reading from quadratics - Interpreting other graphs e.g. reciprocal, piece-wise - Representing inequalities	
		Additional Higher Content Links/Interleaving	- Tree diagrams - Graphical solution of simultaneous equations - Revisit frequency trees, tables and Venn diagrams - Inequalities	

	Geometry	Introduction to Trigonometry	- Review calculate sides in right-angled triangles using Pythagoras' Theorem - Work fluently with the hypotenuse, opposite and adjacent sides - Use the tangent ratio to find missing side lengths - Use the sine and cosine ratio to find missing side lengths	
		Additional Higher Content	- Use sine, cosine and tangent to find missing angles - Select the appropriate method to solve right-angled triangle problems	
		Links/Interleaving	- Revisit Pythagoras theorem - Link with area/perimeter of triangles and compound shapes	
	All	Revision	Teachers to choose topics based on assessment throughout the key stage	

YEAR 10

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Term	Topics	Knowledge covered	Skills developed	Assessment
Autumn 1	Similarity	Congruence, similarity and enlargement	• Understand the difference between congruence and similarity • Enlarge a shape about a given point; understand and use similarity • Find missing sides in similar shapes including pairs of similar triangles • Understand and use the conditions for a pair of congruent triangles	Formative assessment • Use as part of every lesson to assess students' level of understanding • Questioning, verbal feedback, marking in the moment as well as other strategies Periodic assessments • Standardised and differentiated
	Trigonometry		• Understand trigonometric ratios • Work out missing lengths and angles in right-angled triangles • Know and use the exact values of key angles	
	Additional Higher Content		• Area and volume of similar shapes • Formal proof of congruency of triangles • Enlarge a shape by a negative scale factor • Use trigonometry in 3-D shapes	

		Links/Interleaving	- Derive and use the sine and cosine rules - Use the formula $0.5ab\sin C$ to find the area of non-right-angled triangles - Revisit angle rules, including angles in parallel lines - Revisit equations, especially variants of $ax=b$ - Revisit Pythagoras' theorem	assessments testing recent learning at the end of each block - Written personalised feedback from teacher - Students given time to reflect and improve
Autumn 2	Developing Algebra	Representing solutions of equations and inequalities	- Form and solve equations and inequalities in a variety of contexts, including with unknowns on both sides - Present solutions to inequalities on a number line - Represent solutions to equations graphically	Summative assessment - Standardised and differentiated assessments testing overall learning of the term using GCSE exam questions - Detailed QLA to inform teaching and revisiting of areas of development
		Simultaneous equations	- Understand the meaning of a solution, appreciating that some equations have multiple solutions - Form and solve a pair of linear simultaneous equations graphically - Form and solve a pair of linear simultaneous equations algebraically	
		Additional Higher Content	- Use set notation for solutions - Solve inequalities in two variables, identifying regions - Solve quadratic equations and inequalities (by factorisation only) - Solve simultaneous equations with one linear and one quadratic	
		Links/Interleaving	Context for equations to include probability, area, angles, ratio problems etc	
Spring 1	Geometry	Angles and bearings	- Review KS3 angle rules - Understand and use bearings	

		Working with circles	- Review area and circumference - Name parts of a circle and perform related calculations - Find area and volumes related to circles – cylinder, cone, sphere etc.	
		Vectors	- Understand vector notation - Vector arithmetic – addition, subtraction and multiplication by a scalar - Vectors and translations	
		Additional Higher Content Links/Interleaving	- Derive, use and prove the first four circle theorems (The others are covered y11) - Understand and use the equation of a circle - Construct geometric proofs with vectors - Revisit trigonometry - Revisit area and volumes of other shapes and compound shapes - Estimation, rounding and significant figures	
Spring 2	Proportions and Proportional Change	Ratios and fractions	- Use ratios, including with mixed units - Fractions in ratios - Fractions from ratios - Combining ratios - Unit pricing 'best buys' - Currency conversions	

		Percentages and interest	• Convert fractions, decimals and percentages • Find percentages and percentage changes • Find one number as a percentage of another • Calculate simple and compound interest • Evaluate exponential change e.g. depreciation • Find original values	
		Probability	• Review of single event probability – comparing theoretical and experimental • Understand and work with mutually exclusive and independent events • Construct and interpret tree diagrams • Find probabilities from frequency trees, tables and Venn diagrams	
		Additional Higher Content Links/Interleaving	• Revise area and volume ratios • Use iterative methods • Calculate and interpret conditional probabilities • Revisit formal methods of calculation • Revisit fraction arithmetic	
Summer 1	Delving into Data	Collecting, representing and interpreting data	• Understand sampling, including the possible limitations • Construct and interpret tables and line graphs for time series data • Understand and represent with grouped data • Understand and identify correlation • Use lines of best fit, understanding the dangers of extrapolation • Construct and interpret frequency polygons • Evaluate measures of location and dispersion • Use statistical diagrams and measures to compare distributions	

		Additional Higher Content	- Construct and interpret cumulative frequency diagrams, box-plots and histograms - Understand quartiles; use and interpret the inter-quartile range	
		Links/Interleaving	- Use equations e.g. solving problems about the mean - Use non-calculator methods when appropriate	
	Using Number	Non-calculator methods	- Use four operations with integers (positive and negative), decimals and fractions with and without context (include all areas of previous study) - Work with exact answer e.g. area and volume - Evaluate calculations involving percentages	
Summer 2	Using Number	Types of number and sequences	- Use factors, multiples, primes and prime factorisation - Recognise arithmetic and geometric sequences - Recognise and use other sequences	
		Indices and roots	- Work out powers and roots - Use the rules of indices - Calculate with number in standard index form	

		Additional Higher Content	• Calculate with surds • Find the rule for the nth term of a quadratic sequence • Understand and use fractional indices • Work with rational and irrational number, including recurring decimals • Work with limits of accuracy, including upper and lower bounds	
		Links/Interleaving	• Convert FDP • Revisit exact trigonometric values • Revisit area and volume formulae (without a calculator) • Find exact answers in terms of Pi • Solve problems involving financial mathematics	
	Expressions	Manipulating Expressions	• Simplify algebraic expressions • Use identities • Form and solve equations and inequalities with fractions • Represent numbers algebraically • Algebraic arguments and proof	
		Additional Higher Content	• Add and subtract algebraic fractions • Multiply and divide algebraic fractions • Solve equations with algebraic fractions	
		Links/Interleaving	• Revisit solving equations • Revisit expanding and factorising • Link to proof/show that	

YEAR 11

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Autumn 1	Number 1	Calculating and place value	• Four operations with integers and decimals • Rounding including decimal places and significant figures • Estimating calculations	Formative assessment • Use as part of every lesson to assess students' level of understanding. • Questioning, verbal feedback, marking in the moment as well as other strategies
		Powers/Roots/indices	• Powers and roots (calculating with) • Laws of indices (square roots and power of 0) • Writing numbers in standard form	
		Type of number	• Finding and using the product of primes • Find Factors multiples LCM and HCF	
		Additional Content	• Find Error intervals including for truncation • Calculating with standard form	
	Algebra 1	Expressions	• Using and understanding algebraic notation • Being able to expand and simplify expressions • Be able to substitute positive and negative values into expressions	Periodic assessments • Standardised and differentiated assessments testing recent learning. • Written personalised feedback from teacher • Students given time to reflect and improve Summative assessments • Standardised GCSE assessments in the form of mock exams

				Detailed QLA to inform teaching and revisiting of areas of development
		Indices	Apply the laws of indices to algebraic expressions	
		Additional Content	- Substitution into quadratic expressions including with multiple values - Expand and simplify double brackets - Factorise quadratics	
	Equations and Inequalities	Linear Equations and formulae	- Use and understand function machines - Solve linear equations including brackets and unknowns on both sides - Form and solve equations - Change the subject of a formula	
		Inequalities	- Use and identify inequalities on a number line - Solve linear inequalities - Identify numbers that satisfy an inequality	
		Additional Content	- Solve simultaneous equations - Solve double sided inequalities	
Autumn 2	Ratio and Proportinn	Ratio	- Understand and simplify ratio - Share into a given ratio and reverse problems - Simplify ratio to the form 1:n or n:1 - Draw and use scale	
		Proportion	- Calculate with direct proportion - Use proportion for recipe problems - Link proportion to currency and calculate with conversions - Find the best value using proportion	

		Additional Content	- Combine ratios - Apply ratio to shape	
	Fractions, decimals and percentages	Decimals	- Be able to apply four operations to decimals - Be able to apply powers of 10 to decimals	
		Percentages	- Be able to find and use percentages of amounts in a context (increase decrease) - Be able to express an amount as a percentage of another - Be able to apply percentage to simple and compound interest	
		Fractions	- Be able to apply four operations to fractions - Be able to convert fluently between fractions, decimals and percentages - Be able to convert to and from improper fractions/mixed numbers	
		Additional Content	- Apply four operations to mixed numbers - Be able to find the original value after a percentage change (reverse percentages) - Apply knowledge to growth and decay problems - Use knowledge of FDP and ratio to solve more complex problems	
	Area, perimeter, surface area and volume	Area and Perimeter	- Be able to find area and perimeter of simple and complex 2D shapes including circles. - Apply knowledge of area and perimeter to complex problems	
		Surface area and volume	- Be able to find and use volume and surface area of simple shapes. - Be able to identify, draw and use nets, plans and elevations.	
		Additional Content	- Be able to use and apply knowledge of perimeter and area in complex problems including those with sectors and arcs. - Be able to find and apply knowledge of volume and surface area including cylinders and spheres - Apply knowledge of 2D and 3D shapes to more complex problems including those with algebra	

Spring 1	Angles		- Be able to recall and use simple angle facts - Be able to apply and use knowledge of angles in parallel lines - Be able to apply and use knowledge of angles in polygons	
		Additional Content	- Be able to apply knowledge of angles to algebra and form and solve equations with angles - Apply all angle knowledge to complex multi-step problems	
	Probability		- Be able to find the probability of single and combined events - Be able to find expected outcomes using knowledge of probability - Be able to Use a range of diagrams/tables to find probabilities.	
		Additional Content	Be able to use and apply knowledge of probability to Venn and tree diagrams.	
	Triangles		- Be able to use and apply knowledge of angles to triangles - Be able to use and apply knowledge of area and perimeter to triangles. - Be able to use Pythagoras' theorem to find missing sides	
		Additional Content	Use right angled trigonometry and the trigonometric ratios to finding missing angles and sides.	
	Sequences		- Be able to continue sequences and find their term to term rule, for both numerical and pictorial sequences - Be able to use the 'nth' term of a sequences	
		Additional Content	- Be able to find the 'nth' term of a sequences - Be able to problem solve and reason using knowledge of sequences	
	Functions and Graphs		- Be able to use and plot coordinates and straight line graphs - Be able to use and understand the equation of a line	
		Additional Content	- Be able to draw non-linear graphs including reciprocals and quadratics - Be able to find gradients and intercepts from the equation of a line.	

Spring2	Statistics		- Be able to draw, use and criticise range of charts and diagrams - Be able to find averages and range from both diagrams and numerical data lists.	
		Additional Content	- Be able to draw and interpret scatter graphs, frequency polygons and time series graphs - Be able to compare data and other distributions - Be able to find averages of both grouped and ungrouped data in a table.	
	Transformations and similarity		- Be able to complete, describe and identify all four types of transformations (Reflections, rotations, translations and enlargements) - Be able to calculate and use column vectors for translations	
		Additional Content	- Be able to complete all types of enlargement including fractional enlargement - Be able to identify and apply knowledge of similar shapes.	
	Compound Measures and Formula		- Be able to recall and apply the formulae for speed/distance/time. - Be able to convert between units of measure	
		Additional Content	- Be able to apply and use the density formula - Be able to apply knowledge of compound measures to problem solving and reasoning questions - Be able to draw and interpret SDT graphs	
	Constructions and Bearings		- Be able use and draw scale diagrams and maps - Be able to measure and draw angles and bearings accurately - Be able to accurately construct bisectors and other shapes	
		Additional Content	- Be able to apply constructions to Loci questions, including those with multiple conditions. - Be able to apply bearings and angle knowledge to multi step problems including those with trigonometry	