Mathletics and the KS3 England National Curriculum 2014

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This alignment document lists all Mathletics curriculum activities, eBooks and Live Mathletics levels associated with each KS3 'England 2014NC' course, and demonstrates how these fit within the England national curriculum programme of study.

As new activities are developed, this document will be updated. You can download the latest version from the training and support portal:

www.3plearning.com/uk/mathleticsalignment

For guides, training and support visit www.3plearning.com/training

Contents

Key

Mathletics Curriculum Activites

Mathletics eBooks

Live Mathletics

The Primary National Curriculum for England

The national curriculum for mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that all pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.

Curriculum activities and Live Mathletics develop fluency in recalling and applying mathematical knowledge through practise with increasingly harder activities. The student support centre and features such as the concept search help to develop conceptual understanding through interactive explanations and walk-throughs.

- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations and developing an argument, justification or proof using mathematical language.

Reasoning activities are provided through Mathletics curriculum activities and eBooks which encourage children to explore relationships and develop arguments and justifications.

- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Pupils develop problem-solving skills and demonstrate depth of mathematical knowledge through problem-solving activities and games in curriculum activities, eBooks and the 'Problem-solving Centre' which enables students to test their mathematical reasoning skills.

Attainment Targets:

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Reporting and assessment tools in Mathletics provide evidence of pupil attainment and improvement in relation to the programme of study and enable teachers to diagnose gaps in learning.

KS3 Working Mathematically

Through mathematics content, pupils should be taught to:

Develop fluency

- consolidate their numerical and mathematical capability from key stage 2 and extend their understanding of the number system and place value to include decimals, fractions, powers and roots
- select and use appropriate calculation strategies to solve increasingly complex problems
- use algebra to generalise the structure of arithmetic, including to formulate mathematical relationships
- substitute values in expressions, rearrange and simplify expressions, and solve equations
- move freely between different numerical, algebraic, graphical and diagrammatic representations [for example, equivalent fractions, fractions and decimals, and equations and graphs]
- develop algebraic and graphical fluency, including understanding linear and simple quadratic functions
- use language and properties precisely to analyse numbers, algebraic expressions, 2-D and 3-D shapes, probability and statistics.

Reason Mathematically

- extend their understanding of the number system; make connections between number relationships and their algebraic and graphical representations
- extend and formalise their knowledge of ratio and proportion in working with measures and geometry, and in formulating proportional relations algebraically
- identify variables and express relations between variables algebraically and graphically
- make and test conjectures about patterns and relationships; look for proofs or counter-examples
- begin to reason deductively in geometry, number and algebra, including using geometrical constructions
- interpret when the structure of a numerical problem requires additive, multiplicative or proportional reasoning
- explore what can and cannot be inferred in statistical and probabilistic settings, and begin to express their arguments formally.

Solve Problems

- develop their mathematical knowledge, in part through solving problems and evaluating the outcomes, including multi-step problems
- develop their use of formal mathematical knowledge to interpret and solve problems including in financial mathematics
- being to model situations mathematically and express the results using a range of formal mathematical representations
- select appropriate concepts, methods and techniques to apply to unfamiliar and non-routine problems.

KS3 Mathletics Topics, Curriculum Activities, eBooks and Live Mathletics Content

Pupils should be taught to:	Year 7	Year 8	Year 9
Number			
KS3N1 Understand and use place value for decimals, measures and integers of any size.	Converting Units Capacity Addition Converting Units of Area Converting Units of Length Converting Units of Mass Converting Volume Kilometre Conversions Mass Addition Operations with Length Time Mentals What Time Will it Be? Number – Decimals and Percentages Decimal Order Decimal Place Value Whole Numbers Nearest Whole Number Ordering Integers Place Value 2 Place Value 3 Place Value to Billions Rounding Numbers Year 7 Converting Units Year 7 Decimals Year 7 Whole Numbers Live ML Level 5, 6 & 7 Converting Units	Properties of Number Rounding Decimals 2 Rounding Numbers Rounding Significant Figures Significant figures Year 7 Decimals Year 7 Whole Numbers Year 9 Decimals Live ML Level 6, 7 & 8 Converting Units	Number Operations Rounding Significant Figures Year 9 Decimals Live ML Level 6, 7 & 8 Converting Units

KS3 Mathletics Topics, Curriculum Activities, eBooks and Live Mathletics Content

Pupils should be taught to:	Year 7	Year 8	Year 9
Number			
KS3N2 Order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols =, ≠, <, >, ≤, ≥	Number – Decimals and Percentages Comparing Decimals Decimal Order Decimal Place Value Number - Fractions Equivalent Fractions on a Number Line 2 Mixed and Improper Fractions on a Number Line Ordering Fractions Ordering Fractions Whole Numbers Ordering Integers Year 7 Decimals Year 7 Directed Numbers Year 7 Fractions Year 7 Whole Numbers	Year 7 Decimals Year 7 Directed Numbers Year 7 Fractions Year 7 Whole Numbers	Algebra – Equations & Inequalities Graphing Inequalities 1 Year 9 Decimals
KS3N3 Use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation property.	Whole Numbers Factors Multiples Prime Factoring Prime or Composite? Product of Prime Factors Year 7 Whole Numbers	Properties of Number Highest Common Factor Lowest Common Multiple Prime Factoring: Exponents Product of Prime Factors Year 7 Whole Numbers Year 8 Expanding and Factorising	Algebra – Equations & Inequalities Substitution with Fractions Year 9 Equations and Inequalities Year 9 Indices

Pupils should be taught to:	Year 7	Year 8	Year 9
KS3N4 Use the 4 operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative.	Algebra Basics Magic Symbols 1 Magic Symbols 2 Number – Decimals and Percentages Adding and Subtracting Decimals Number – Fractions Add Unlike Fractions Equivalent Fraction Wall 2 Equivalent Fractions Equivalent Fractions on a Number Line 2 Fraction Word Problems Improper to Mixed Mixed & Improper Fractions on a Number Line Mixed to Improper One Take Fractions Simplifying Fractions Subtract Unlike Fractions Number – Integer Operations Add Integers Adding Colossal Columns Adding Colossal Columns Bar Model Problems 1 Bar Model Problems 2 Column Addition 1 Column Addition 2 Column Subtraction Order of Operations 1 (BIDMAS) Long Division Long Multiplication Mental Methods Division 3 Mental Methods Multiplication 3 Problems: Add & Subtract 2 Problems: Multiply & Divide 1 Short Division Short Multiplication Subtract Integers Subtracting Colossal Columns Year 6 Addition and Subtraction Year 6 Multiplication and Division Year 7 Decimals Year 7 Directed Numbers Year 7 Fractions Year 7 Whole Numbers Live ML Level 4,5 & 6: Operations	Number Operations – Estimation Estimate Decimal Operations Estimate Decimal Sums 2 Estimate Products Estimate Products with Fractions Estimate Quotients Estimate Square Roots Estimation: Add and Subtract Number Operations – Fractions & Decimals Adding Decimals Decimal by a Whole Number Divide Decimals by Whole Number Dividing Fractions Model Fractions to Multiply More Fraction Problems Multiplying Fractions Subtract Decimals 2 Number Operations – Integers Adding Colossal Columns Bar Model Problems 2 Long Division Long Multiplication Order of Operations 2 Pyramid Puzzles 2 Short Division Subtracting Colossal Columns Year 7 Decimals Year 7 Directed Numbers Year 7 Fractions Year 7 Whole Numbers Year 8 Percentage Calculations Live ML Level 5, 6 & 7: Operations	Number Operations Add Unlike Mixed Numbers Adding Colossal Columns Divide Decimal by Decimal Divide Fractions by Fractions 1 Divide Fractions by Fractions 2 Divide Mixed Numbers with Signs Long Division 1 Long Multiplication Multiply Mixed Numbers Short Division Subtract Unlike Mixed Numbers Subtracting Colossal Columns Year 7 Decimals Year 7 Directed Numbers Year 7 Fractions Year 7 Whole Numbers Year 8 Percentage Calculations Live ML Level 6 & 7: Operations

KS3 Mathletics Topics, Curriculum Activities, eBooks and Live Mathletics Content

Pupils should be taught to:	Year 7	Year 8	Year 9
Number			
KS3N5 Use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals.	Number – Integer Operations Order of Operations 1 (BIDMAS) Year 7 Directed Numbers Live ML Level 7: Operations	Algebra – Equations & Inequalities Complex Substitution Substitution in Formulae Number Operations – Integers Order of Operations 2 Year 7 Directed Numbers Year 9 Simplifying Algebra Live ML Level 7: Operations	Algebra – Equations & Inequalities Complex Substitution More Substitution in Formula Substitution in Formulae Substitution with Fractions Year 9 Simplifying Algebra Live ML Level 7: Operations Live ML Level 8: Operations
KS3N6 Recognise and use relationships between operations including inverse operations.	Algebra - Equations Find the Missing Number 1 Find the Missing Number 2 Missing Numbers Missing Numbers: Variables Missing Values: Decimals Solve Equations: Add, Subtract 1 Solve Equations: Multiply, Divide 1 Year 7 Algebra Basics Year 8 Equations Live ML Level 4: Operations Live ML Level 5: Operations Live ML Level 6: Operations	Algebra – Equations & Inequalities Solving Simple Equations Solve Equations: Add, Subtract 2 Solve Equations: Multiply, Divide 2 Solve Two-Step Equations Checking Solutions Solving More Equations Year 7 Algebra Basics Year 8 Equations Year 8 Inequalities Live ML Level 5: Operations Live ML Level 6: Operations Live ML Level 7: Operations	Algebra – Equations & Inequalities Equations: Variables both sides Solve Multi-Step Equations Solve Two-Step Equations Year 8 Equations Year 8 Inequalities Year 9 Equations and Inequalities Live ML Level 5: Operations Live ML Level 6: Operations Live ML Level 7: Operations
KS3N7 Use integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5 and distinguish between exact representations of roots and their decimal approximations.	Algebra - Indices Index Form to Numbers Index Notation Whole Number Square Roots Year 7 Whole Numbers Live ML Level 7: Cubes	Number Operations – Estimation Estimate Square Roots Properties of Number Index Form to Numbers Year 7 Whole Numbers Year 9 Indices Live ML Level 7: Cubes	Number Exponents Integer Exponents Year 7 Whole Numbers Year 9 Indices Live ML Level 7: Cubes
KS3N8 Interpret and compare numbers in standard form A x 10n 1≤A<10, where n is a positive or negative integer or 0.	Algebra - Indices Scientific Notation Year 9 Indices	Year 9 Indices	Number Scientific Notation 1 Scientific Notation 2 Year 9 Indices

KS3 Mathletics Topics, Curriculum Activities, eBooks and Live Mathletics Content

Pupils should be taught to:	Year 7	Year 8	Year 9
Number			
KS3N9 Work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and 7/2 or 0.375 and 3/8).	Number – Decimals & Percentages Fractions to Decimals Decimals to Fractions 2 Year 7 Decimals Live ML Level 6 Fractions & Decimals	Year 7 Decimals Live ML Level 6 Fractions & Decimals	Year 7 Decimals Live ML Level 6 Fractions & Decimals
KS3N10 Define percentage as 'number of parts per hundred', interpret percentages and percentage changes as a fraction or a decimal, interpret these multiplicatively, express 1 quantity as a percentage of another, compare 2 quantities using percentages, and work with percentages greater than 100%.	Number – Decimals & Percentages Modelling Percentages Percents and Decimals Percent of a Number Percentage to a Fraction Year 7 Percentage Basics Live ML Level 6 Percentages	Number – Decimals & Percentages Calculating Percentages Calculating Percentages 1 Percentage Composition Percentage Increase and Decrease Percentage of a Quantity Percentage Word Problems Year 8 Percentage Calculations Live ML Level 6 Percentages	Number – Percentage Operations Percentage Composition Percentage Increase and Decrease Percentage of a Quantity Percentage Word Problems Profit & Loss Simple Interest Year 8 Percentage Calculations Year 9 Earning Money Live ML Level 6 Percentages
KS3N11 Interpret fractions and percentages as operators.	Number – Decimals & Percentages Percentage to a Fraction Percent of a Number Year 7 Percentage Basics Live ML Level 6 Percentages	Number – Decimals & Percentages Calculating Percentages Calculating Percentages 1 Percentage Composition Percentage Increase and Decrease Percentage of a Quantity Percentage Word Problems Year 8 Percentage Calculations Live ML Level 6 Percentages	Number – Percentage Operations Percentage Composition Percentage Increase and Decrease Percentage of a Quantity Percentage Word Problems Profit & Loss Simple Interest Year 8 Percentage Calculations Year 9 Earning Money Live ML Level 6 Percentages

KS3 Mathletics Topics, Curriculum Activities, eBooks and Live Mathletics Content

Pupils should be taught to:	Year 7	Year 8	Year 9
Number			
KS3N12 Use standard units of mass, length, time, money and other measures, including with decimal quantities.	Converting Units Capacity Addition Converting Units of Area Converting Units of Length Converting Units of Mass Converting Volume Kilometre Conversions Mass Addition Operations with Length Time Mentals What Time Will it Be? Year 7 Converting Units Year 7 Time Calculations Live ML Level 5 Converting Units Live ML Level 6 Converting Units Live ML Level 7 Converting Units	Year 8 Percentage Calculations Year 9 Earning Money Live ML Level 5 Converting Units Live ML Level 6 Converting Units Live ML Level 7 Converting Units	Financial Mathematics Best Buy Budgeting Profit & Loss Purchasing Options Reading From a Bill Simple Interest Wages and Salaries Number – Percentage Operations Profit & Loss Simple Interest Year 8 Percentage Calculations Year 9 Earning Money Live ML Level 6 Converting Units Live ML Level 7 Converting Units Live ML Level 8 Converting Units
KS3N13 Round numbers and measures to an appropriate degree of accuracy [for example, to a number of decimal places or significant figures].	Number – Decimals and Percentages Nearest Whole Number Rounding Decimals Whole Numbers Rounding Numbers Year 7 Decimals Year 7 Whole Numbers	Properties of Number Rounding Decimals 2 Rounding Numbers Rounding Significant Figures	Year 9 Decimals
KS3N14 Use approximation through rounding to estimate answers and calculate possible resulting errors expressed using inequality notation $a<x\leq b$.	Number – Decimals and Percentages Nearest Whole Number Rounding Decimals Whole Numbers Rounding Numbers Year 7 Decimals Year 7 Whole Numbers	Number Operations – Estimation Estimate Decimal Operations Estimate Decimals Sums 2 Estimate Products Estimate Products with Fractions Estimate Quotients Estimate Square Roots Estimation: Add and Subtract Properties of Number Rounding Decimals 2 Rounding Numbers Rounding Significant Figures Year 7 Decimals Year 7 Whole Numbers Year 9 Decimals	Year 7 Decimals Year 7 Whole Numbers Year 9 Decimals

KS3 Mathletics Topics, Curriculum Activities, eBooks and Live Mathletics Content

Pupils should be taught to:	Year 7	Year 8	Year 9
Number			
KS3N15 Use a calculator and other technologies to calculate results accurately and then interpret them appropriately.			
KS3N16 Appreciate the infinite nature of the sets of integers, real and rational numbers.			
Algebra			
KS3A1 Use and interpret algebraic notation, including: ab in place of a × b; 3y in place of y + y + y and 3 × y; a^2 in place of a × a; a^3 in place of a × a × a; a^2b in place of a × a × b; a/b in place of a ÷ b; coefficients written as fractions rather than as decimals; brackets.	Algebra Basics Writing Algebraic Expressions Algebra – Equations Changing the Subject Checking Solutions Solve Equations: Add, Subtract 1 Solve Equations: Multiply, Divide 1 Algebra - Indices Index Laws & Algebra Index Notation Index Notation and Algebra Multiplication with indices Simplifying with Index Laws 1 Year 6 Patterns and Algebra Year 7 Algebra Basics Live ML Level 8 Algebra	Algebra – Equations & Inequalities Complex Substitution Simplifying with Index Laws 2 Solve Equations: Add, Subtract 2 Solve Equations: Multiply, Divide 2 Solve Multi-Step Equations Solve Two-Step Equations Solving More Equations Solving Simple Equations Substitution in Formulae Writing Equations Algebra - Simplifying Expand Then Simplify Expanding Binomial Products Factorising Expressions Factorising with Indices Factorising with Negatives Index Laws & Algebra Index Laws with Brackets Index Notation and Algebra Multiplication with indices Properties of Number Prime Factoring: Exponents Year 7 Algebra Basics Year 8 Equations Year 8 Expanding and Factorising Year 8 Simplifying Algebra Live ML Level 8 Algebra Live ML Level 9 Algebra	Algebra – Equations & Inequalities Complex Substitution Equations to Solve Problems Equations: Variables both sides More Substitution in Formulae Solve Multi-Step Equations Solve Two-Step Equations Substitution in Formulae Substitution with Fractions Algebra – Simplifying Expanding Binomial Products Factorising Factorising Expressions Factorising with Fractions 1 Factorising with Negatives Index Laws & Algebra Simplifying Binomial Expressions Simplifying with Index Laws 2 Special Binomial Products Zero Index and Algebra Year 8 Expanding & Factorising Year 9 Equations & Inequalities Year 9 Simplifying Algebra Live ML Level 8 Algebra Live ML Level 9 Algebra

KS3 Mathletics Topics, Curriculum Activities, eBooks and Live Mathletics Content

Pupils should be taught to:	Year 7	Year 8	Year 9
Algebra			
KS3A2 Substitute numerical values into formulae and expressions, including scientific formulae.	Algebra – Coordinates and Graphs Function Rules and Tables Algebra – Equations Checking Solutions Find the Missing Number 1 Find the Missing Number 2 Missing Numbers Missing Numbers: Variables Missing Values: Decimals Simple Substitution 1 Simple Substitution 2 Simple Substitution 3 Year 6 Patterns and Algebra Year 7 Algebra Basics Year 7 The Number Plane Live ML Level 8 Algebra	Algebra – Equations & Inequalities Complex Substitution Simple Substitution 1 Substitution in Formulae Algebra – Linear Relationships Decreasing Patterns Describing Patterns Function Rules and Tables Increasing Patterns Year 6 Patterns and Algebra Year 7 Algebra Basics Year 8 Equations Year 8 Straight Lines Live ML Level 8 Algebra Live ML Level 9 Algebra	Algebra – Equations & Inequalities Substitution in Formulae Complex Substitution More Substitution in Formula Substitution with Fractions Real Formulae Algebra – Sequences Pattern Rules & Tables Geometry – Area, Perimeter & Volume Surface Area: Rearrange Formula Volume: Rearrange Formula Year 6 Patterns and Algebra Year 8 Equations Live ML Level 8 Algebra Live ML Level 9 Algebra
KS3A3 Understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors.	Algebra Basics Algebraic Multiplication Dividing Expressions Like Terms: Add, Subtract Recognising Like Terms Simplifying Expressions Writing Algebraic Expressions Year 7 Algebra Basics Year 8 Equations Live ML Level 8 Algebra	Algebra – Equations & Inequalities Solve One-Step Inequalities 1 Solving Inequalities 1 Algebra - Simplifying Expand then Simplify Factorising Expressions Factorising with Indices Factorising with Negatives Year 8 Equations Year 8 Expanding and Factorising Year 8 Inequalities Year 8 Simplifying Algebra Live ML Level 8 Algebra Live ML Level 9 Algebra	Algebra – Equations & Inequalities Solving Inequalities 2 Solving Inequalities 3 Algebra – Simplifying Expanding the Simplify Expanding with Negatives Factorising Expressions Factorising with Negatives Graphing Inequalities Simplifying Binomial Expressions Year 8 Expanding and Factorising Year 9 Equations & Inequalities Year 9 Simplifying Algebra Live ML Level 8 Algebra Live ML Level 9 Algebra

KS3 Mathletics Topics, Curriculum Activities, eBooks and Live Mathletics Content

Pupils should be taught to:	Year 7	Year 8	Year 9
Algebra			
KS3A4 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 2 or more binomials.	Algebra Basics Algebraic Multiplication Dividing Expressions Like Terms: Add, Subtract Recognising Like Terms Simplifying Expressions Algebra – Equations Changing the Subject Algebra - Indices Multiplication with indices Year 6 Patterns and Algebra Year 7 Algebra Basics Year 8 Simplifying Algebra Year 9 Indices Live ML Level 8 Algebra	Algebra - Simplifying Expand then Simplify Expanding Binomial Products Expanding Brackets Expanding with Negatives Factorising Expressions Factorising with Indices Factorising with Negatives Multiplication with indices Year 6 Patterns and Algebra Year 7 Algebra Basics Year 8 Expanding and Factorising Year 8 Simplifying Algebra Year 9 Indices Live ML Level 8 Algebra Live ML Level 9 Algebra	Algebra – Simplifying Expanding Binomial Products Factorising Factorising Expressions Factorising with Fractions 1 Factorising with Indices Factorising with Negatives Simplifying Binomial Expressions Special Binomial Products Year 8 Expanding and Factorising Year 9 Equations & Inequalities Year 9 Simplifying Algebra Live ML Level 8 Algebra Live ML Level 9 Algebra
KS3A5 Understand and use standard mathematical formulae; rearrange formulae to change the subject.	Algebra – Equations Changing the Subject Geometry – Area, Perimeter & Volume Area: Parallelograms Area: Squares and Rectangles Area: Squares and Rectangles 2 Area: Triangles Perimeter Detectives 2 Perimeter of Shapes Perimeter: Squares and Rectangles Perimeter: Triangles Volume – Cuboid 1 Volume – Cuboid 2 Year 7 Area & Perimeter Year 7 Solids L:ive ML Level 7 Volume & Area Live ML Level 8 Volume & Area	Geometry – Area, Perimeter & Volume Area: Circles 1 Area: Composite Shapes Area: Parallelograms Area: Right Angled Triangles Circumference: Circles Perimeter: Composite Shapes Surface Area: Cuboids Surface Area: Triangular Prisms Volume: Cylinders Volume: Prisms Volume: Rectangular Prisms 1 Volume: Triangular Prisms Year 7 Area & Perimeter Year 7 Solids L:ive ML Level 7 Volume & Area Live ML Level 8 Volume & Area	Geometry – Area, Perimeter & Volume Area: Circles 1 Area: Composite Shapes Circumference: Circles Perimeter Detectives 2 Perimeter: Composite Shapes Surface Area: Cuboids Surface Area: Cylinders Surface Area: Triangular Prisms Volume: Cylinders Year 9 Measuring Solids Year 9 Perimeter & Area L:ive ML Level 7 Volume & Area Live ML Level 8 Volume & Area

KS3 Mathletics Topics, Curriculum Activities, eBooks and Live Mathletics Content

Pupils should be taught to:	Year 7	Year 8	Year 9
Algebra			
KS3A6 Model situations or procedures by translating them into algebraic expressions or formulae and by using graphs.	Algebra Basics Find the Function Rule Magic Symbols 1 Magic Symbols 2 Algebra – Coordinates and Graphs Function Rules and Tables Algebra – Equations Writing Algebraic Expressions Year 6 Patterns & Algebra Year 7 Algebra Basics	Algebra – Equations & Inequalities Writing Equations Algebra – Linear Relationships Describing Patterns Find the Function Rule Find the Pattern Rule Function Rules and Tables Modelling Linear Relationships Year 8 Equations Year 8 Simplifying Algebra Year 11 Arithmetic	Algebra – Equations & Inequalities Equations to Solve Problems Algebra – Linear Relationships Breakeven Point Modelling Linear Relationships Algebra – Sequences Find the Pattern Rule Pattern Rules and Tabes Year 8 Equations Year 8 Simplifying Algebra Year 11 Arithmetic
KS3A7 Use algebraic methods to solve linear equations in 1 variable (including all forms that require rearrangement).	Algebra – Equations Solve Equations: Add, Subtract 1 Solve Equations: Multiply, Divide 1 Year 7 Algebra Basics Year 8 Equations	Algebra – Equations & Inequalities Solve Equations: Add, Subtract 2 Solve Equations: Multiply, Divide 2 Solve One-Step Inequalities 1 Solve Two-Step Equations Solving Inequalities 1 Solving More Equations Solving Simple Equations Year 7 Algebra Basics Year 8 Equations Year 8 Inequalities Year 9 Equations & Inequalities	Algebra – Equations & Inequalities Equations: Variables both sides Solving Inequalities 2 Solving Inequalities 3 Solve Multi-Step Equations Solve Two-Step Equations Year 8 Equations Year 8 Inequalities Year 9 Equations & Inequalities
KS3A8 Work with coordinates in all 4 quadrants.	Algebra – Coordinates and Graphs Coordinate Graphs - 1st Quadrant Graphing from a Table of Values 1 Ordered Pairs Reading Values from a Line Year 7 The Number Plane L:ive ML Level 7 Cartesian Plane	Algebra – Linear Relationships Gradient Graphing from a Table of Values 1 Graphing from a Table of Values 2 Intercepts Midpoint by Formula Year 8 Linear Relationships Year 8 Straight Lines L:ive ML Level 7 Cartesian Plane	Algebra – Linear Relationships Gradient Graphing from a Table of Values 2 Intercepts Midpoint by Formula Year 8 Straight Lines Year 9 Linear Relationships L:ive ML Level 7 Cartesian Plane

KS3 Mathletics Topics, Curriculum Activities, eBooks and Live Mathletics Content

Pupils should be taught to:	Year 7	Year 8	Year 9
Algebra			
KS3A9 Recognise, sketch and produce graphs of linear and quadratic functions of 1 variable with appropriate scaling, using equations in x and y and the Cartesian plane.	Algebra – Coordinates and Graphs Function Rules and Tables Number Plane y=ax Year 7 The Number Plane L:ive ML Level 7 Cartesian Plane	Algebra – Linear Relationships Horizontal and Vertical Lines y=ax Year 8 Linear Relationships Year 8 Straight Lines L:ive ML Level 7 Cartesian Plane	Algebra – Equations & Inequalities Graphing Parabolas Algebra – Linear Relationships Equation from Two Points Simultaneous Linear Equations Horizontal and Vertical Lines Year 8 Straight Lines Year 9 Coordinate Geometry Year 9 Linear Relationships Year 10 Functions Year 10 Parabolas Year 10 Sketching Polynomials L:ive ML Level 7 Cartesian Plane
KS3A10 Interpret mathematical relationships both algebraically and graphically.	Algebra Basics Magic Symbols 1 Magic Symbols 2 Writing Algebraic Expressions Algebra – Coordinates and Graphs y=ax Graphing from a Table of Values 1 Year 7 Algebra Basics Year 7 The Number Plane	Algebra – Linear Relationships Find the Function Rule Find the Pattern Rule Graphing from a Table of Values 1 Graphing from a Table of Values 2 y=ax Year 8 Equations Year 8 Linear Relationships Year 8 Straight Lines Year 8 Simplifying Algebra Year 11 Arithmetic	Algebra – Equations & Inequalities Quadratic Inequalities Algebra – Linear Relationships Equation from Two Points Graphing from a Table of Values 2 Simultaneous Linear Equations Algebra – Sequences Find the Pattern Rule Year 8 Straight Lines Year 9 Coordinate Geometry Year 9 Linear Relationships Year 11 Arithmetic
KS3A11 Reduce a given linear equation in two variables to the standard form y = mx + c; calculate and interpret gradients and intercepts of graphs of such linear equations numerically, graphically and algebraically.	Algebra – Coordinates and Graphs y=ax Year 7 The Number Plane	Algebra – Linear Relationships Gradient Intercepts Midpoint by Formula y=ax Year 8 Linear Relationships Year 8 Straight Lines	Algebra – Linear Relationships Are they Parallel? Breakeven Point Equation from Two Points Gradient Intercepts Midpoint by Formula Parallel Lines Simultaneous Linear Equations Year 8 Straight Lines Year 9 Linear Relationships Year 10 Sketching Polynomials

KS3 Mathletics Topics, Curriculum Activities, eBooks and Live Mathletics Content

Pupils should be taught to:	Year 7	Year 8	Year 9
Algebra			
KS3A12 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.	Year 7 The Number Plane Year 8 Straight Lines	Year 8 Equations Year 8 Linear Relationships Year 8 Straight Lines Year 9 Equations and Inequalities	Algebra – Linear Relationships Simultaneous Equations 1 Simultaneous Equations 2 Simultaneous Linear Equations Year 8 Straight Lines Year 9 Equations and Inequalities Year 9 Linear Relationships Year 10 Functions Year 10 Parabolas
KS3A13 Find approximate solutions to contextual problems from given graphs of a variety of functions, including piece-wise linear, exponential and reciprocal graphs.			Year 10 Exponential and Power Graphs Year 10 Functions Year 10 Simple Non-Linear Graphs Year 10 Sketching Polynomials

KS3 Mathletics Topics, Curriculum Activities, eBooks and Live Mathletics Content

Pupils should be taught to:	Year 7	Year 8	Year 9
Algebra			
KS3A14 Generate terms of a sequence from either a term-to-term or a position-to-term rule.	Algebra Basics Decreasing Patterns Describing Patterns Find the Function Rule Increasing Patterns Year 6 Patterns & Algebra Year 7 Algebra Basics Year 7 Whole Numbers Live ML Level 6 Sequences Live ML Level 8 Sequences	Algebra – Linear Relationships Decreasing Patterns Describing Patterns Find the Function Rule Find the Pattern Rule Function Rules and Tables Increasing Patterns Year 8 Equations Year 11 Arithmetic Year 11 Geometric Live ML Level 6 Sequences Live ML Level 8 Sequences	Algebra – Sequences Find the Pattern Rule Pattern Rules & Tables Terms: Arithmetic Progressions Terms: Geometric Progressions 1 Year 8 Equations Year 11 Arithmetic Year 11 Geometric Live ML Level 6 Sequences Live ML Level 8 Sequences
KS3A15 Recognise arithmetic sequences and find the nth term.	Year 6 Patterns & Algebra Year 7 Algebra Basics Year 7 Whole Numbers Year 11 Arithmetic Live ML Level 6 Sequences Live ML Level 8 Sequences	Algebra – Linear Relationships Decreasing Patterns Describing Patterns Find the Pattern Rule Increasing Patterns Year 8 Equations Year 11 Arithmetic Live ML Level 6 Sequences Live ML Level 8 Sequences	Algebra – Sequences Find the Pattern Rule Terms: Arithmetic Progressions Year 8 Equations Year 11 Arithmetic Live ML Level 6 Sequences Live ML Level 8 Sequences
KS3A16 Recognise geometric sequences and appreciate other sequences that arise.	Year 6 Patterns & Algebra Year 7 Algebra Basics Year 7 Whole Numbers Year 11 Geometric	Algebra – Linear Relationships Find the Pattern Rule Find the Function Rule Year 8 Equations Year 11 Geometric	Algebra – Sequences Find the Pattern Rule Pattern Rules & Tables Terms: Geometric Progressions 1 Year 8 Equations Year 11 Geometric

KS3 Mathletics Topics, Curriculum Activities, eBooks and Live Mathletics Content

Pupils should be taught to:	Year 7	Year 8	Year 9
Geometry			
KS3G1 Derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms, trapezia, volume of cuboids (including cubes) and other prisms (including cylinders).	Geometry – Area, Perimeter and Volume Area: Parallelograms Area: Squares & Rectangles Area: Squares & Rectangles 2 Area: Triangles Comparing Volume Perimeter: Squares & Rectangles Volume: Cuboid 1 Volume: Cuboid 2 Year 7 Area & Perimeter Year 7 Solids L:ive ML Level 7 Area Live ML Level 8 Area	Geometry – Area, Perimeter and Volume Area: Circles Area: Composite Shapes Area: Parallelograms Area: Right Angled Triangles Perimeter: Composite Shapes Volume: Rectangular Prisms 1 Volume: Triangular Prisms Volume: Prisms Volume: Cylinders Year 7 Area & Perimeter Year 7 Solids Year 9 Perimeter & Area L:ive ML Level 7 Area Live ML Level 8 Area	Geometry – Area, Perimeter & Volume Area: Circles Area: Composite Shapes Perimeter: Composite Shapes Perimeter Detectives 2 Volume: Cylinders Year 9 Measuring Solids Year 9 Perimeter & Area L:ive ML Level 7 Area Live ML Level 8 Area
KS3G2 Calculate and solve problems involving: perimeters of 2-D shapes (including circles), areas of circles and composite shapes.	Geometry – Area, Perimeter and Volume Perimeter of Shapes Perimeter: Squares & Rectangles Perimeter: Triangles Perimeter Detectives 2 Year 7 Area & Perimeter	Geometry – Area, Perimeter and Volume Identify Parts of Circles 1 Circumference of Circles Year 7 Area & Perimeter Year 9 Perimeter & Area	Geometry – Area, Perimeter & Volume Circumference of Circles Identify Parts of Circles 1 Identify Parts of Circles 2 Perimeter Detectives 2 Year 9 Perimeter & Area
KS3G3 Draw and measure line segments and angles in geometric figures, including interpreting scale drawings.	Geometry – Shape and Angle Properties Estimating Angles Measuring Angles Geometry – Transformation and Scale Floor Plans Scale Scale Factor Scale Measurement Year 7 Angles Year 7 Angles & Polygons	Geometry – Angle Properties Comparing Angles Estimating Angles Measuring Angles Year 7 Angles Year 8 Constructions Year 9 Polygons & Angles	Year 8 Constructions Year 9 Polygons & Angles

KS3 Mathletics Topics, Curriculum Activities, eBooks and Live Mathletics Content

Pupils should be taught to:	Year 7	Year 8	Year 9
Geometry			
KS3G4 Derive and use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle); recognise and use the perpendicular distance from a point to a line as the shortest distance to the line.	Geometry – Shape and Angle Properties Classifying Angles Measuring Angles Year 7 Angles Year 7 Angles & Polygons Year 7 Polygons	Geometry – Angle Properties Classifying Angles Measuring Angles Year 7 Angles Year 8 Constructions Year 9 Polygons & Angles	Year 7 Angles Year 7 Angles & Polygons Year 8 Constructions Year 9 Polygons & Angles
KS3G5 Describe, sketch and draw using conventional terms and notations: points, lines, parallel lines, perpendicular lines, right angles, regular polygons, and other polygons that are reflectively and rotationally symmetric.	Geometry – Shape and Angle Properties Collect the Polygons Classifying Angles Estimating Angles Measuring Angles Labelling Angles Geometry – Transformation and Scale Rotational Symmetry Symmetry or Not 1 Year 7 Angles Year 7 Angles & Polygons Year 7 Polygons	Geometry – Area, Perimeter and Volume Identify Pars of Circles 1 Geometry – Angle Properties Classifying Angles Equal, Complement or Supplement Measuring Angles Geometry - Pythagoras Hypotenuse, Adjacent, Opposite Year 7 Angles & Polygons Year 7 Polygons Year 8 Pythagoras' Theorem Year 8 Constructions Year 9 Polygons & Angles	Geometry – Pythagoras & Trigonometry Hypotenuse, Adjacent, Opposite Hypotenuse of a Right Angled Triangle Year 8 Pythagoras' Theorem Year 9 Polygons & Angles Year 9 Similarity & Congruence
KS3G6 Use the standard conventions for labelling the sides and angles of triangle ABC, and know and use the criteria for congruence of triangles.	Geometry – Shape and Angle Properties Labelling Angles Year 7 Angles Year 7 Angles & Polygons Year 7 Polygons	Geometry – Angle Properties Classifying Angles Geometry – Polygons Congruent Triangles Geometry - Pythagoras Hypotenuse, Adjacent, Opposite Pythagoras' Theorem Pythagorean Triads Year 8 Constructions Year 8 Pythagoras' Theroem Year 9 Polygons & Angles Year 9 Similarity & Congruence	Geometry – Angle & Shape Properties Similar Figures Geometry – Pythagoras & Trigonometry Hypotenuse of a Right Angled Triangles Hypotenuse, Adjacent, Opposite Pythagoras' Theorem Pythagorean Triads Year 8 Constructions Year 8 Pythagoras' Theroem Year 9 Polygons & Angles Year 9 Similarity & Congruence

KS3 Mathletics Topics, Curriculum Activities, eBooks and Live Mathletics Content

Pupils should be taught to:	Year 7	Year 8	Year 9
Geometry			
KS3G7 Derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures [for example, equal lengths and angles] using appropriate language and technologies.	Geometry – Shape and Angle Properties Collect the Polygons Year 7 Angles & Polygons Year 7 Polygons	Geometry – Angle Properties Angles in a Revolution Geometry – Polygons Congruent Triangles Plane Figure Terms Plane Figure Theorems Similar Figures Year 7 Polygons Year 9 Similarity & Congruence	Geometry – Angle & Shape Properties Congruent Figures Congruent Triangles Similar Figures Similarity Proofs Using Similar Triangles Year 9 Similarity & Congruence
KS3G8 Identify properties of, and describe the results of, translations, rotations and reflections applied to given figures.	Geometry – Transformation and Scale Rotations: Coordinate Plane Rotational Symmetry Transformations Transformations: Coordinate Plane Year 7 Polygons	Year 7 Angles & Polygons Year 7 Polygons	Year 7 Angles & Polygons Year 7 Polygons
KS3G9 Identify and construct congruent triangles, and construct similar shapes by enlargement, with and without coordinate grids.	Geometry – Transformation and Scale Scale Scale Factor Scale Measurement Year 7 Polygons	Year 7 Polygons	Geometry – Angle & Shape Properties Congruent Figures Congruent Triangles Similar Figures Year 9 Measuring Solids Year 9 Similarity & Congruence
KS3G10 Apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles.	Geometry – Shape and Angle Properties Classifying Angles Year 7 Angles Year 7 Angles & Polygons	Geometry – Angle Properties Angles and Parallel Lines Angles in a Revolution Classifying Angles Year 7 Angles & Polygons Year 8 Constructions	Geometry – Angle & Shape Properties Angles in a Revolution Angles and Parallel Lines Year 8 Constructions Year 9 Polygons & Angles
KS3G11 Understand and use the relationship between parallel lines and alternate and corresponding angles.	Geometry – Shape and Angle Properties Labelling Angles Year 7 Angles Year 7 Angles & Polygons	Geometry – Angle Properties Angles and Parallel Lines Year 7 Angles Year 7 Angles & Polygons	Geometry – Angle & Shape Properties Angles and Parallel Lines Year 9 Polygons & Angles

KS3 Mathletics Topics, Curriculum Activities, eBooks and Live Mathletics Content

Pupils should be taught to:	Year 7	Year 8	Year 9
Geometry			
KS3G12 Derive and use the sum of angles in a triangle and use it to deduce the angle sum in any polygon, and to derive properties of regular polygons.	Year 7 Angles Year 7 Angles & Polygons	Geometry – Angle Properties Angle Sum of a Triangle Angle Sum of a Quadrilateral Year 7 Angles Year 7 Angles & Polygons	Geometry – Angle & Shape Properties Angle Sum of Quadrilateral Angle Sum of a Triangle Exterior Angles of a Triangle Interior & Exterior Angles Year 9 Polygons & Angles
KS3G13 Apply angle facts, triangle congruence, similarity and properties of quadrilaterals to derive results about angles and sides, including Pythagoras' Theorem, and use known results to obtain simple proofs.	Year 7 Angles Year 7 Angles & Polygons	Geometry – Angle Properties Angle Sum of a Quadrilateral Angle Sum of a Triangle Angles and Parallel Lines Angles in a Revolution Geometry - Pythagoras Hypotenuse of a Right Angled Triangle Pythagoras' Theorem Pythagorean Triads Year 7 Angles Year 7 Angles & Polygons Year 8 Pythagoras' Theorem	Geometry – Area, Perimeter & Volume Area: Composite Shapes Perimeter: Composite Shapes Geometry – Angle & Shape Properties Angle Sum of a Quadrilateral Angle Sum of a Triangle Angles and Parallel Lines Angles in a Revolution Congruent Triangles Exterior Angles of a Triangle Similar Figures Geometry – Pythagoras & Trigonometry Hypotenuse of a Right Angled Triangle Hypotenuse, Adjacent, Opposite Interior & Exterior Angles Pythagorean Theorem Year 9 Polygons & Angles

KS3 Mathletics Topics, Curriculum Activities, eBooks and Live Mathletics Content

Pupils should be taught to:	Year 7	Year 8	Year 9
Geometry			
KS3G14 Use Pythagoras' Theorem and trigonometric ratios in similar triangles to solve problems involving right-angled triangles.	Year 8 Pythagoras' Theorem	Geometry - Pythagoras Hypotenuse of a Right Angled Triangle Pythagorean Triads Year 8 Pythagoras' Theorem	Geometry – Pythagoras & Trigonometry Hypotenuse of a Right Angled Triangle Hypotenuse, Adjacent, Opposite Pythagorean Theorem Year 8 Pythagoras' Theorem Year 9 Trigonometry
KS3G15 Use the properties of faces, surfaces, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres to solve problems in 3-D.	Geometry – Shape and Angle Properties Elevations Properties of Solids Relate Shapes and Solids Year 7 Solids L:ive ML Level 7 Volume Live ML Level 8 Volume	Geometry – Area, Perimeter and Volume Surface Area: Cuboids Surface Area: Triangular Prims Year 7 Solids L:ive ML Level 7 Volume Live ML Level 8 Volume	Geometry – Area, Perimeter & Volume Surface Area: Cuboids Surface Area: Cylinders Surface Area: Triangular Prims Year 9 Measuring Solids L:ive ML Level 7 Volume Live ML Level 8 Volume
KS3G16 Interpret mathematical relationships both algebraically and geometrically.	Year 7 Angles Year 7 Angles & Polygons	Year 7 Angles & Polygons Year 8 Equations Year 8 Simplifying Algebra Year 9 Measuring Solids	Year 9 Measuring Solids

KS3 Mathletics Topics, Curriculum Activities, eBooks and Live Mathletics Content

Pupils should be taught to:	Year 7	Year 8	Year 9
Probability			
KS3P1 Record, describe and analyse the frequency of outcomes of simple probability experiments involving randomness, fairness, equally and unequally likely outcomes, using appropriate language and the 0-1 probability scale.	Probability Complementary Events Find the Probability Probability Scale Simple Probability 1 Year 6 Chance & Probability Year 7 Chance Year 8 Probability	Probability How Many Combinations? Probability Scale Simple Probability Year 8 Probability	Probability Probability Scale Relative Frequency Two-Way Probability Year 9 Probability
KS3P2 Understand that the probabilities of all possible outcomes sum to 1.	Probability Complementary Events Probability Scale Year 6 Chance & Probability Year 7 Chance Year 8 Probability	Year 8 Probability	Year 9 Probability
KS3P3 Enumerate sets and unions/intersections of sets systematically, using tables, grids and Venn diagrams.	Probability Counting Principle Find the Probability Venn Diagrams Year 6 Chance & Probability Year 7 Chance Year 8 Probability	Probability Counting Techniques 1 Dice and Coins Find the Probability How Many Combinations? Possible Outcomes Venn Diagram 1 Year 8 Probability	Probability Counting Techniques 2 Dice and Coins Two-Way Probability Year 9 Probability
KS3P4 Generate theoretical sample spaces for single and combined events with equally likely, mutually exclusive outcomes and use these to calculate theoretical probabilities.	Probability Complementary Events Year 6 Chance & Probability Year 7 Chance Year 8 Probability	Probability Dice and Coins Find the Probability Probability Scale Simple Probability Year 8 Probability	Probability Probability - 'and' 'or' Probability Scale Relative Frequency Year 9 Probability

KS3 Mathletics Topics, Curriculum Activities, eBooks and Live Mathletics Content

Pupils should be taught to:	Year 7	Year 8	Year 9
Ratio, Proportion & Rates of Change			
KS3R1 Change freely between related standard units [for example time, length, area, volume/capacity, mass].	Converting Units Capacity Addition Converting Units of Area Converting Units of Length Converting Units of Mass Converting Volume Kilometre Conversions Mass Addition Operations with Length Time Mentals What Time Will it Be? Year 7 Converting Units Live ML Level 5 Converting Units Live ML Level 6 Converting Units Live ML Level 7 Converting Units Live ML Level 8 Converting Units	Year 7 Converting Units Live ML Level 5 Converting Units Live ML Level 6 Converting Units Live ML Level 7 Converting Units Live ML Level 8 Converting Units	Year 7 Converting Units Live ML Level 5 Converting Units Live ML Level 6 Converting Units Live ML Level 7 Converting Units Live ML Level 8 Converting Units
KS3R2 Use scale factors, scale diagrams and maps.	Geometry – Transformations and Scale Elevations Floor Plans Scale Scale Factor Scale Measurement Year 6 Position Year 7 The Number Plane	Year 7 The Number Plane	Year 9 Coordinate Geometry
KS3R3 Express 1 quantity as a fraction of another, where the fraction is less than 1 and greater than 1.		Ratio and Proportion Equivalent Ratios Ratios Solve Proportions Year 9 Decimals	Ratio & Proportion Rates Rates Calculations Rates Word Problems Year 9 Decimals

Pupils should be taught to:	Year 7	Year 8	Year 9
Ratio, Proportion & Rates of Change			
KS3R4 Use ratio notation, including reduction to simplest form.	Whole Number Ratio Year 9 Decimals Live ML Level 7 Ratios	Ratio and Proportion Dividing a Quantity in a Ratio Equivalent Ratios Ratio Ratio Word Problems Ratios Unitary Methods Year 9 Decimals Live ML Level 7 Ratios	Ratio & Proportion Ratio Equivalent Ratios Year 9 Decimals Live ML Level 7 Ratios
KS3R5 Divide a given quantity into 2 parts in a given part:part or part:whole ratio; express the division of a quantity into 2 parts as a ratio.	Whole Number Ratio Year 9 Decimals Live ML Level 7 Ratios	Ratio and Proportion Ratio Unitary Methods Ratio Word Problems 1 Dividing a Quantity in a Ratio Year 9 Decimals Live ML Level 7 Ratios	Ratio & Proportion Ratio Dividing a Quantity in a Ratio Year 9 Decimals Live ML Level 7 Ratios
KS3R6 Understand that a multiplicative relationship between 2 quantities can be expressed as a ratio or a fraction.	Whole Number Ratio Year 9 Decimals Live ML Level 7 Ratios	Ratio and Proportion Ratio Ratio Word Problems 1 Solve Proportions Unitary Methods Year 9 Decimals Live ML Level 7 Ratios	Ratio & Proportion Ratio Year 9 Decimals Live ML Level 7 Ratios
KS3R7 Relate the language of ratios and the associated calculations to the arithmetic of fractions and to linear functions.	Algebra – Coordinates and Graphs Function Rules and Tables Year 7 Algebra Basics Live ML Level 7 Ratios	Ratio and Proportion Find the Pattern Rule Function Rules and Tables Year 7 Algebra Basics Live ML Level 7 Ratios	Live ML Level 7 Ratios

KS3 Mathletics Topics, Curriculum Activities, eBooks and Live Mathletics Content

Pupils should be taught to:	Year 7	Year 8	Year 9
Ratio, Proportion & Rates of Change			
KS3R8 Solve problems involving percentage change, including: percentage increase, decrease and original value problems and simple interest in financial mathematics.	Year 7 Percentage Basics	Ratio and Proportion Percentage Increase and Decrease Year 8 Percentage Calculations	Number – Percentage Calculations Percentage Increase and Decrease Financial Mathematics Best Buy Budgeting Profit and Loss Purchase Options Reading from a Bill Simple Interest Wages and Salaries Year 9 Earning Money
KS3R9 Solve problems involving direct and inverse proportion, including graphical and algebraic representations.	Year 7 Polygons		Geometry – Area, Perimeter & Volume Perimeter, Area, Dimension Change Year 9 Measuring Solids Year 9 Similarity & Congruence
KS3R10 Use compound units such as speed, unit pricing and density to solve problems.	Year 7 Time Calculations	Year 8 Percentage Calculations	Geometry – Area, Perimeter & Volume Perimeter, Area, Dimension Change Ratio & Proportion Rates Rates Calculations Rates Word Problems Year 9 Earning Money

KS3 Mathletics Topics, Curriculum Activities, eBooks and Live Mathletics Content

Pupils should be taught to:	Year 7	Year 8	Year 9
Statistics			
KS3S1 Describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving discrete, continuous and grouped data; and appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers).	Statistics & Data Line Graph: Interpretation 1 Mean Median Mode Pie Chart Calculations Pie Charts Reading from a Bar Chart Stem & Leaf Introduction Tally Charts Year 6 Data Representation Year 7 The Number Plane Live ML Level 8 Statistical Measures	Statistics & Data Divided Bar Graphs Finding the Average Frequency Histogram Histograms Line Plots Mean 1 Mean from Frequency Table Median 1 Median from Frequency Median from Stem & Leaf Mode Mode from Frequency Table Mode from Stem & Leaf Pie Chart Calculations Stem & Leaf Plots Year 6 Data Representation Year 8 Straight Lines Year 9 Data Live ML Level 8 Statistical Measures	Statistics & Data Calculating Interquartile Range Cumulative Frequency Histogram Cumulative Frequency Table Data Extremes and Range Dot Plots Mean from Frequency Table Median from Frequency Mode from Frequency Table Year 9 Data Live ML Level 8 Statistical Measures
KS3S2 Construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data.	Algebra – Coordinates and Graphs Graphing from a Table of Values 1 Statistics & Data Creating a Sector Graph Year 6 Data Representation Year 7 The Number Plane	Algebra - Linear Relationships Graphing from a Table of Values 1 Graphing from a Table of Values 2 Year 8 Straight Lines	Algebra - Linear Relationships Graphing from a Table of Values 2 Statistics & Data Solve systems by graphing Year 8 Straight Lines Year 9 Linear Relationships
KS3S3 Describe simple mathematical relationships between 2 variables (bivariate data) in observational and experimental contexts and illustrate using scatter graphs.			Statistics & Data Correlation Cumulative Frequency Table Dot Plots Scatter Plots Year 9 Data Year 10 Interpreting Data

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