Key Stage 3 National Curriculum Alignment for Wales

Mathletics and the Welsh Curriculum

This alignment document lists all Mathletics curriculum activities associated with each Wales course, and demonstrates how these fit within the National Curriculum Programme of Study for Wales.

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

http://www.3plearning.com/uk/mathleticsalignment/

Key: Normal text: LNF statement Extended skill ▲ Programme of study skill ❖

Contents

Year 7	

Expectation	Activity
Using Number Skills: Use number facts and relationships	
7N1a read and write numbers of any size and use the four operations and the connections between them, e.g. apply division as the inverse of multiplication	Numbers from Words to Digits 3 Related Facts 1 Related Facts 2
7N1b recognise and apply key mental facts and strategies	Problems: Add and Subtract 2 Problems: Multiply and Divide 1
7N1c use appropriate strategies for multiplication and division, including application of known facts	Short Multiplication Long Multiplication Long Division Mental Methods Division Integers: Multiply and Divide
7N1d **identify and use the lowest common multiple of two or more numbers** ❖	Lowest Common Multiple
7N1e **identify and use the highest common factor of two or more numbers** ❖	Highest Common Factor
7N1f **justify whether a number is a prime number or not** ❖	Prime or Composite?
7N1g use the terms square and square root	Square Roots
7N1h **express square numbers using powers** ❖	Square Roots
7N1i **identify triangular numbers** ❖	
Using number skills: Fractions, decimals, percentage and ratio	
7N2a **use equivalence of fractions, decimals, percentages and ratio** to compare proportions ▲	Equivalent Fractions on a Number Line 1 Equivalent Fraction Wall 2 Equivalent Fractions Decimals to Fractions 1 Decimal to Percentage Percents and Decimals Percentage to Fraction
7N2b recognise that some fractions are recurring decimals, **e.g. 1/3 is 0.333**	Recurring Decimals
7N2c calculate percentages of quantities using non-calculator methods where appropriate	Percentage Word Problems Percent of a Number Percentage of a Quantity
7N2d use ratio and proportion including map scales	Ratio Ratio and Proportion Dividing a Quantity in a Ratio
7N2e **express two or more quantities as a ratio using the correct notation** ❖	Ratio Ratio and Proportion
7N2f **simplify ratio** ❖	Equivalent Ratios

Year 7

Expectation	Activity
7N2g **add and subtract fractions** ❖	Add: Common Denominator Subtract: Common Denominator No Common Denominator Add Like Mixed Numbers Subtract Like Mixed Numbers
7N2h **convert between mixed numbers and improper fractions** ❖	Converting Mixed and Improper Mixed and Improper Fractions on a Number Line
Using Number Skills: Calculate using Mental and Written Methods	
7N3a use efficient written methods to add and subtract numbers with up to 2 decimal places	Adding and Subtracting Decimals
7N3b multiply and divide 3-digit by 2-digit whole numbers, extending to multiplying and dividing decimals with 1 or 2 places by single-digit whole numbers	Decimal by Whole Number Divide Decimal by Whole Number
7N3c multiply and divide whole numbers by 0.5, 0.2, 0.1	
7N3d use the order of operations	Integers: Order of Operations Identifying errors in applying the order of operations
7N3e **add and subtract with negative numbers using mental methods** ❖	Adding Integers: Positive, Negative or Zero
Using number skills: Estimate and check	
7N4a use a range of strategies to check calculations including the use of inverse operations, equivalent calculations and the rules of divisibility	Divisibility Tests
7N4b use rounding to estimate answers	Estimation: Add and Subtract Estimation: Multiply and Divide
7N4c present answers to a given number of decimal places	Rounding Decimals Significant Figures Rounding Significant Figures
Using number skills: Manage money	
7N5a use profit and loss in buying and selling calculations	Profit and Loss Money Problems: Four Operations with Pounds
7N5b understand the advantages and disadvantages of using bank accounts, including bank cards	
7N5c make informed decisions relating to discounts and special offers	Best Buy

Mathletics

Year 7	

Expectation	Activity
Using Measuring Skills: Length, weight/mass, capacity	
7M1a find perimeters of shapes, **including compound shapes**, with straight sides ▲	Perimeter: Squares and Rectangles Perimeter Detectives 2 Perimeter: Triangles Perimeter: Composite Shapes
7M1b **make estimates of length, weight/mass and capacity based on familiar and less familiar objects** ▲	
7M1c read and interpret scales on a range of measuring instruments	How Heavy is it? What's the Temperature (Celsius)?
7M1d convert between units of the metric system and carry out calculations	Grams and Milligrams Grams and Kilograms Converting Units of Mass Converting cm and mm Metres and Kilometres Converting Units of Length Operations with Length Capacity Addition Millilitres and Litres
7M1e **understand that some measurements take particular values and others can take any value within a given range** ❖	Error in Measurement
Using Measuring Skills: Time	
7M2a measure and record time in hundredths of a second	
7M2b **calculate start times, finish times and durations** ❖	
7M2c **convert between times expressed as a decimal or fraction and hours, minutes and seconds, e.g. 1.5, 1.25, 1.75 hours** ❖	Hours and Minutes
7M2d use time zones **to compare times in different countries** ▲	Time Zones
Using Measuring Skills: Temperature	
7M3a record temperatures in appropriate temperature scales	What's the Temperature (Celsius)?
Using measuring skills: Area and volume, Angle and position	
7M4a **devise and** use formulae for the area of rectangles and triangles ▲	Area: Squares and Rectangles Area: Right Angled Triangles Area: Triangles
7M4b **devise and use formulae to calculate the area of parallelograms** ❖	Area: Parallelograms
7M4c **calculate areas of compound shapes (e.g. consisting of rectangles and triangles) and volumes of simple solids (e.g. cubes and cuboids)** ❖	Area: Composite Shapes

Mathletics

Year 7

Expectation	Activity
7M4d measure, draw **and label** angles **to the nearest degree, e.g. angle ABC ▲**	Measuring Angles
7M4e **use knowledge of angle types to estimate angles ❖**	Estimating Angles Classifying Angles What Type of Angle?
7M4f **calculate angles on a straight line, around a point, vertically opposite and in triangles ❖**	Equal, Complement or Supplement? Angles in a Revolution Angle Sum of a Triangle
Using Geometry Skills: Shape	
7G1a **make connections between nets and prisms and pyramids ❖**	Relate Shapes and Solids Nets
7G1b **define solid shapes by their properties using the terms edges, faces, vertices and prism ❖**	Faces, Edges and Vertices of 3D Shapes
7G1c **explain the properties of congruent shapes ❖**	Congruent Triangles Congruent Figures (Grid) Congruent Figures: Find Values
7G1d **identify a radius and diameter and use the relationship between them ❖**	Identify Parts of Circles 1
7G1e **identify a circumference ❖**	
Using Geometry Skills: Construction	
7G2a **construct circles using compasses ❖**	
7G2b **recognise and draw to scale on square paper nets of cubes and cuboids ❖**	
7G2c **draw triangles accurately given lengths and angles, using ruler and protractor ❖**	
Using Geometry Skills: Movement	
7G3a **know the symmetrical properties of regular and irregular shapes ❖**	Rotational Symmetry
7G3b **rotate a shape on a grid ❖**	Rotations: Coordinate Plane
7G3c **translate a shape using a description, e.g. 4 squares right and 2 squares down ❖**	Transformations: Coordinate Plane
7G3d **describe a translation ❖**	
Using Algebra Skills: Number sequences	
7A1a **distinguish between a term to term rule and an nth term rule ❖**	Linear Expressions for the Nth Term
7A1b **explore number sequences ❖**	Describing Patterns
7A1c **express nth term rules involving one and two steps in words and symbols ❖**	Pattern Rules and Tables Find the Pattern Rule Linear Expressions for the Nth Term

Mathletics

Year 7

Expectation	Activity
Using Algebra Skills: Expressions and formulae	
7A2a **show that a + b = b + a and a − b is not equal to b − a** ❖	Commutative Property of Addition
7A2b show that a x b = b x a and a/b is not equal to b/a ❖	
7A2c know that 4g x 2h = 8gh ❖	Recognising Like Terms
7A2d know that b divided by 2 is notated as b/2 and ½b ❖	
7A2e substitute positive whole numbers into one and two step expressions ❖	Simple Substitution 1 Simple Substitution 2
7A2f simplify expressions involving the addition and subtraction of two or more variables ❖	Like Terms: Add and Subtract
Using Algebra Skills: Functions and graphs	
7A3a express output generated from two (or more) step function machines, taking into account the order of operations using algebra ❖	Pattern Rules and Tables
7A3b read, plot and write coordinates in all four quadrants ❖	Ordered Pairs Graphing from a Table of Values Reading Values from a Line
Using Algebra Skills: Equations and inequalities	
7A4a solve two step equations ❖	Solving Simple Equations Solve Two-Step Equations
7A4b **express a set of numbers as a single inequality using < > ≤ ≥** ❖	Solving Inequalities 1
7A4c **give solutions for inequalities < > ≤ ≥, recognising that there are an infinite number of solutions** ❖	Solving Inequalities 1
Using Data Skills: Collect and record data, Present and analyse data, Interpret results	
7D1a collect own data for a survey, e.g. through designing a questionnaire	
7D1b construct frequency tables for sets of data, grouped where appropriate, in equal class intervals (groups given to learners)	Grouping data and modal class
7D1c construct a wide range of graphs and diagrams to represent the data and reflect the importance of scale	Histograms for Grouped Data
7D1d interpret diagrams and graphs (including pie charts)	Reading from a Bar Chart Line Graphs: Interpretation Pie Charts

Mathletics

Year 7

Expectation	Activity
7D1e use mean, median, mode and range to compare two distributions (discrete data)	Mode Median Mean Which Measure of Central Tendency? Data Extremes and Range
Using Data Skills: Probability	
7D2a recognise that impossible = 0 and certain = 1 and that the probability of an event will lie on a scale between 0 and 1 ❖	Probability Scale
7D2b express the probability of an event as a fraction or decimal percentage ❖	Simple Probability Find the Probability
7D2c give examples of events that have a probability of ½ ❖	Probability Scale What are the Chances?
7D2d determine events with two outcomes that are/aren't equally likely ❖	Complementary Events
7D2e record all the outcomes of two events as an exhaustive list ❖	How many Combinations? Counting Techniques 1
7D2f estimate the number of successes of an event, e.g. flipping a coin ten times, how many heads would be expected? ❖	Relative Frequency

Year 8

Expectation	Activity
Using Number Skills: Use number facts and relationships	
8N1a recognise and apply key mental facts and strategies	
8N1b use known facts to derive others, e.g. use 7 x 6 to derive 0.7 x 6	
8N1c use the terms cube, cube root and reciprocal	Square and Cube Roots
8N1d **express cube numbers using powers** ❖	Square and Cube Roots Index Notation Index Form to Numbers
8N1e **express repeated multiplications as powers, e.g. 7 x 7 x 7 x 7 x 7 x 7 = 7^6** ❖	Index Notation Index Form to Numbers
Using Number Skills: Fractions, decimals, percentages and ratio	
8N2a use equivalence of fractions, decimals, percentages and ratio to select the most appropriate for calculation ▲	Equivalent Ratios Decimals to Fractions 2 Fraction to Terminating Decimal Decimals to Fractions 1 Decimal to Percentage Percents and Decimals Percentage to Fraction
8N2b simplify a calculation by using fractions in their simplest terms	Simplifying Fractions
8N2c **express recurring decimals using correct notation** ❖	Recurring Decimals
8N2d calculate a percentage, fraction, decimal of any quantity with a calculator where appropriate	Decimal by Whole Number Fraction by Whole Number Fraction of an Amount
8N2e calculate the outcome of a given percentage increase or decrease	Percentage Increase and Decrease
8N2f **express one quantity as a percentage of another** ❖	
8N2g **simplify ratios including those given in different units** ❖	Ratio
8N2h use ratio and proportion to calculate quantities, including **cases where the 'total' is not given** ▲	Dividing a Quantity in a Ratio Ratio Word Problems
8N2i **add, subtract, multiply and divide fractions** ❖	Common Denominator No Common Denominator One take Fraction Divide by a unit fraction Add Like Mixed Numbers Subtract Like Mixed Numbers Add Unlike Mixed Numbers Subtract Unlike Mixed Numbers

Year 8

Expectation	Activity
Using Number Skills: Calculate using mental and written methods	
8N3a use efficient written methods to add and subtract numbers with up to 2 decimal places	Adding and Subtracting Decimals
8N3b use efficient methods for multiplication and division of whole numbers and decimals, including decimals such as 0.6 or 0.06	Decimal by Whole Number Multiply Decimals: Area Model Decimal by Decimal Divide Decimal by Whole Number Divide Decimal by Decimal
8N3c use the order of operations including brackets	Integers: Order of Operations
8N3d **multiply and divide with negative numbers using mental methods** ❖	
Using Number Skills: Estimate and check	
8N4a use rounding to estimate answers to a given number of significant figures	Rounding Decimals Significant Figures Rounding Significant Figures
8N4b present answers to a given number of significant figures	Significant Figures Rounding Significant Figures
Using Number Skills: Manage money	
8N5a carry out calculations relating to VAT, saving and borrowing	Simple Interest Income Tax (UK) Purchase Options
8N5b appreciate the basic principles of budgeting, saving (including understanding compound interest) and borrowing	Simple Interest Income Tax (UK) Purchase Options
8N5c **calculate using foreign money and exchange rates** ❖	Conversion Graphs
Using Measuring Skills: Length, weight/mass, capacity	
8M1a **find circumferences of circles** ❖	Circumference: Circles
8M1b use the common units of measure, convert between related units of the metric system and carry out calculations	Grams and Milligrams Grams and Kilograms Converting Units of Mass Mass Addition Converting cm and mm Metres and Kilometres Converting Units of Length Operations with Length Capacity Addition Millilitres and Litres
8M1c use rough metric equivalents of imperial units in daily use	
8M1d **recognise measurements that are discrete and those that are continuous** ❖	

Year 8

Expectation	Activity
8M1e **interpret conversion graphs** ❖	Conversion Graphs
Using measuring Skills: Time	
8M2a interpret fractions of a second appropriately	
8M2b **interpret time expressed as decimals and fractions and enter them appropriately on a calculator** ❖	Hours and Minutes
8M2c use timetables and time zones to calculate travel time for a multi-stage journey •	
Using Measuring Skills: Temperature	
8M3a convert temperatures between appropriate temperature scales	
Using Measuring Skills: Area and volume, Angle and position	
8M4a calculate areas of compound shapes (e.g. consisting of rectangles and triangles) and volumes of simple solids (e.g. cubes and cuboids)	Area: Composite Shapes Volume: Composite Figures
8M4b **find areas of circles** ❖	Area: Circles
8M4c **devise and use formulae to calculate the area of trapezia and kites** ❖	Area: Quadrilaterals
8M4d **calculate volumes of prisms constructed from cuboids, e.g. within an L-shaped cross-section** ❖	Volume: Composite Figures
8M4e **explore angles on parallel lines** ❖	Angles and Parallel Lines
8M4f **understand exterior angles of triangles** ❖	Exterior Angles of a Triangle
8M4g **know and use the angle properties of quadrilaterals** ❖	Angle Sum of a Quadrilateral
8M4h **find horizontal and vertical distances using coordinates** ❖	
8M4i **use bearings to describe the location of one object in relation to another** ❖	
8M4j use compass bearings and grid references to specify location	
Using Geometry Skills: Shape	
8G1a **classify quadrilaterals** ❖	Properties of Quadrilaterals
8G1b **explore the tessellation of two shapes** ❖	
8G1c **recognise shapes that will or will not tessellate** ❖	
Using Geometry Skills: Construction	
8G2a **recognise and draw accurate nets of prisms** ❖	Nets
8G2b **represent 3D shapes on isometric paper and draw plans and elevations of 3D shapes made out of cubes** ❖	Elevations
8G2c **construct triangles given three lengths, using a ruler and compasses** ❖	
8G2d **identify sets of lengths that cannot form a triangle** ❖	

Mathletics

Year 8

Expectation	Activity
Using Geometry Skills: Movement	
8G3a explore symmetrical properties of 3D shapes; identify planes of symmetry ❖	
8G3b enlarge shapes on square paper where the scale factor is a positive whole number ❖	Scale Factor
Using Algebra Skills: number sequences	
8A1a use algebra to express the nth term rule of a linear sequence ❖	Linear Expressions for the Nth Term
8A1b use the nth term rule to find particular terms ❖	
8A1c use the nth term rule to generate a sequence ❖	Pattern Rules and Tables Find the Pattern Rule Linear Expressions for the Nth Term
Using Algebra Skills: Expressions and forrmulae	
8A2a know that a x a = a^2 ❖	Algebraic Multiplication Index Notation and Algebra
8A2b know that 2a x a = $2a^2$ ❖	Algebraic Multiplication Index Notation and Algebra
8A2c substitute positive and negative whole numbers into one and two step expressions ❖	Simple Substitution Substitution in Formulae
8A2d simplify expressions involving the addition and subtraction of two or more variables, including those where one or more of the simplified variables is negative ❖	Expand then Simplify Simplifying Expressions
8A2e expand a single bracket ❖	Expanding Brackets Expand then Simplify Expanding with Negatives
8A2f rearrange formulae involving two variables ❖	Changing the Subject Surface Area: Rearrange Formula Volume: Rearrange Formula
Using Algebra Skills: Functions and graphs	
8A3a express output generated from function machines, taking into account the order of operations ❖	Pattern Rules and Tables
8A3b generate and plot points for linear functions ❖	Graphing from a Table of Values
Using Algebra Skills: Equations and inequalities	
8A4a solve equations including those where the solution is a negative, a fraction or a decimal and those that include brackets ( ) ❖	Solving Simple Equations Solve Equations: Add, Subtract 2 Solve Equations: Multiply, Divide 2 Solving More Equations Solve Multi-Step Equations Equations with Grouping Symbols
8A4b give a set of solutions from an inequality with two boundaries and show them on a number line ❖	Graphing Inequalities 1 Graphing Inequalities 2

Year 8

Expectation	Activity
8A4c express a set of numbers as an inequality ❖	Solving Inequalities 1
8A4d complete and interpret simple information and distance-time graphs, showing an understanding of gradients within the context of the question ❖	Equations to Solve Problems
Using Data Skills: Collect and record data, Present and analyse data, Interpret results	
8D1a plan how to collect data to test hypotheses	
8D1b construct a wide range of graphs and diagrams to represent discrete and continuous data	Histograms for Grouped Data
8D1c construct frequency tables for sets of data in equal class intervals, selecting groups as appropriate	Grouping data and modal class
8D1d construct graphs to represent data including scatter diagrams to investigate correlation	Scatter Plots Correlation
8D1e interpret diagrams and graphs to compare sets of data	Stem and Leaf Introduction
8D1f find the mean, median, mode and range from ungrouped frequency tables ❖	Mean from Frequency Table Mode from Frequency Table Median from Frequency
8D1g use mean, median, mode and range to compare two distributions (continuous data)	
Using Data Skills: Probability	
8D2a show that the sum of all probabilities = 1 ❖	Complementary Events
8D2b recognise that some outcomes cannot occur simultaneously, e.g. a coin cannot show heads and tails at the same time ❖	Complementary Events
8D2c know that events that have two outcomes are not necessarily equally likely ❖	Complementary Events
8D2d complete a sample space diagram and a two way table ❖	Probability Tables Dice and Coins Two-way Table Probability
8D2e estimate the number of successes of an event, e.g. rolling a fair dice 300 times, how many 3s would be expected? ❖	Relative Frequency

Year 9

Expectation	Activity
Using Number Skills: use number facts and relationships	
9N1a **use known facts to derive others, e.g. use 7 x 6 to derive 42 ÷ 0.0006** ❖	
9N1b **use powers and understand the importance of powers of 10, and its application in standard form, e.g. 2^6 x 2^8 = 2^{14}** ▲	Index Notation Index Form to Numbers Simplifying with Index Laws 1
9N1c show awareness of the need for standard form and its representation on a calculator	Scientific Notation 1 Scientific Notation 2
9N1d **represent standard form on a calculator** ❖	Scientific Notation 1 Scientific Notation 2
9N1e **multiply, divide and use brackets with powers** ❖	Index Notation Index Form to Numbers Simplifying with Index Laws 1
9N1f **write a number as a product of its prime factors in index form** ❖	Prime Factorisation with Indices
Using Number Skills: Fractions, decimals, percentages and ratio	
9N2a use equivalence of fractions, decimals, percentages and ratio to select the most appropriate for a calculation •	Equivalent Ratios Percentage to Fraction Solve Proportions Dividing a Quantity in a Ratio Ratio Word Problems Unitary Method
9N2b use, interpret and calculate with different representations of fractions, e.g. mixed numbers and improper fractions •	Divide fractions visual model Ordering Fractions No Common Denominator One take Fraction Converting Mixed and Improper Add Unlike Mixed Numbers Subtract Unlike Mixed Numbers Multiplying Fractions Dividing Fractions More Fraction Problems Fraction Word Problems Divide Whole Number by Fraction Counting with Fractions on a Number Line Mixed and Improper Fractions on a Number Line Identifying fractions beyond 1
9N2c calculate a percentage increase or decrease	Percentage Increase and Decrease
9N2d express one quantity as a percentage of another, including those given in different units ▲	Solve Percent Equations

Year 9

Expectation	Activity
9N2e use ratio and proportion to calculate quantities, **including cases where the 'total' is not given** ▲	
Using Number Skills: Calculate using mental and written methods	
9N3a use efficient written methods to add and subtract numbers and decimals of any size, including a mixture of large and small numbers with differing numbers of decimal places	Column Addition 1 Adding Colossal Columns Subtracting Colossal Columns Adding and Subtracting Decimals
9N3b multiply and divide whole numbers and decimals	Decimal by Whole Number Multiply Decimals: Area Model Decimal by Decimal Divide Decimal by Whole Number Divide Decimal by Decimal
9N3c use the order of operations including brackets and powers	Order of Operations 1 Identifying errors in applying the order of operations
9N3d **use the four operations in multistep calculations involving negative numbers, using mental and written methods** ❖	
Using Number Skills: Estimate and check	
9N4a make and justify estimates and approximations of calculations	Estimate Square Roots
9N4b choose the appropriate degree of accuracy to present answers	Estimate Products with Fractions
Using Number Skills: Manage money	
9N5a calculate using foreign money and exchange rates	Conversion Graphs
9N5b understand the risks involved in different ways of saving and investing	
9N5c describe why insurance is important and understand the impact of not being insured	
Using Measuring Skills: Length, weight/mass, capacity	
9M1a find circumferences of circles and perimeters of semicircles and quadrants •	Circumference: Circles Perimeter and Circles
9M1b **derive and use Pythagoras' theorem** ❖	Pythagoras' Theorem
9M1c make links between speed, distance and time	Average Speed Distance Travelled Time Taken
9M1d **understand and use a variety of compound measures, including speed and density** ❖	Average Speed Distance Travelled Time Taken
9M1e **define upper and lower bounds of discrete measurements** ❖	Error in Measurement

Year 9

Expectation	Activity
9M1f recognise that there are different considerations for continuous data ❖	Error in Measurement
Using Measuring Skills: Time	
9M2a use timetables and time zones to plan a journey ❖	
Using Measuring Skills: Temperature	
9M3a convert temperatures between appropriate temperature scales	
Using Measuring Skills: Area and volume, Angle and position	
9M4a find areas of circles, semicircles and quadrants ▲	Area: Circles Area: Sectors
9M4b calculate surface areas of cubes and cuboids ❖	Surface Area: Cuboids
9M4c calculate volumes of prisms and cylinders ❖	Volume: Cuboid 1 Volume: Cuboid 2 Volume: Triangular Prisms Volume: Cylinders
9M4d calculate angles on parallel lines ❖	Angles and Parallel Lines Parallel Lines
9M4e calculate interior and exterior angles of polygons ❖	Interior and Exterior Angles
9M4f draw the relative position of objects given the bearing of one from the other ❖	Bearings Scale
9M4g apply understanding of bearings and scale to interpret maps and plans, and to create plans and drawings to scale	Bearings Scale
Using Geometry Skills: Shape	
9G1a recognise similar shapes and calculate the size of missing sides with whole number scale factor ❖	Similar Figures Scale Factor
9G1b explore properties of shapes that tessellate ❖	
Using Geometry Skills: Construction	
9G2a select and use appropriate equipment to draw triangles when given sufficient angles and sides ❖	
Using Geometry Skills: Movement	
9G3a rotate shapes about the origin ❖	Rotations: Coordinate Plane
9G3b describe rotations about the origin ❖	Rotations: Coordinate Plane
9G3c enlarge a shape around a centre where the scale factor is positive ❖	
9G3d explore locus where the path is a given distance	
Using Algebra Skills: number sequences	
9A1a use the nth term rule to determine whether a number is in a sequence ❖	Pattern Rules and Tables Find the Pattern Rule Linear Expressions for the Nth Term
9A1b determine the position number of a given term ❖	

Mathletics

Year 9

Expectation	Activity
9A1c distinguish between a linear and non-linear sequence ❖	
Using Algebra Skills: Expressions and formulae	
9A2a show and use rules that involve the multiplication, division and use of brackets with index variables ❖	
9A2b simplify expressions including expansion of a single bracket, including a(b + c) + d(e + f), and double brackets ❖	Using the Distributive Property Expand then Simplify Expanding with Negatives Expanding Binomial Products Special Binomial Products
9A2c factorise algebraic expressions of two or more terms into a single bracket where there is one common factor ❖	Factorising Factorising Expressions Factorising with Negatives
9A2d rearrange formulae involving two or more variables ❖	Changing the Subject Surface Area: Rearrange Formula Volume: Rearrange Formula
Using Algebra Skills: Functions and graphs	
9A3a examine features of linear functions, read an intercept from a graph, and recognise positive and negative gradients ❖	Gradient Intercepts Horizontal and Vertical Lines y=ax Determining a Rule for a Line Which Straight Line? Equation of a Line 1
9A3b recognise the impact of the coefficient of x on the gradient of the line ❖	Gradient y=ax Which Straight Line? Equation of a Line 1
Using Algebra Skills: Equations and inequalities	
9A4a construct and solve equations that include brackets ( ) and a( ) + b( ) ❖	Solve Multi-Step Equations Equations with Grouping Symbols
9A4b construct and solve equations where the variable appears on both sides of the equals sign ❖	Equations to Solve Problems
9A4c solve equations by trial and improvement and justify the solution ❖	
9A4d express situations as inequalities ❖	
9A4e solve inequalities and show the solutions on a number line ❖	Solving Inequalities 2 Graphing Inequalities 2
9A4f construct and interpret information graphs that relate to a variety of situations, e.g. running a bath ❖	

Year 9

Expectation	Activity
Using Data Skills: Collect and record data, Present and analyse data, Interpret results	
9D1a test hypotheses, making decisions about how best to record and analyse the information from large data sets	
9D1b construct and interpret graphs and diagrams including pie charts) to represent discrete or continuous data, with the learner choosing an appropriate scale	Pie Chart Calculations
9D1c select and justify statistics most appropriate to the problem considering extreme values (outliers)	
9D1d examine results critically, select and justify choice of statistics recognising the limitations of any assumptions and their effect on the conclusions drawn	
9D1e use appropriate mathematical instruments and methods to construct accurate drawings	
9D1f **find the mean, median, mode and range from grouped frequency tables and explain why it is an estimate** ❖	Grouping data and modal class
Using Data Skills: Probability	
9D2a **use the sum of all probabilities is 1 – simple cases, e.g. rolling a dice P (not 6)** ❖	Complementary Events
9D2b **recognise that practice is different from theory and that repeated experiments may give different results** ❖	Relative Frequency
9D2c **understand that reliability/stability increases with a greater number of trials** ❖	
9D2d **construct a sample space diagram and a two way table** ❖	Probability Tables Dice and Coins Two-way Table Probability