Mathletics AQA Specification Alignment







Contents

Number and Algebra	2
N1 Working with numbers and the number system	2
N2 Fractions, Decimals and Percentages	3
N3 Ratio and Proportion	4
N4 The Language of Algebra	5
N5 Expressions and Equations	5
N6 Sequences, Functions and Graphs	6
Geometry and Measures	8
G1 Properties of angles and shapes	8
G2 Geometrical reasoning and calculation	8
G3 Measures and Construction	9
G4 Mensuration	10
G5 Vectors	10
Statistics and Probability	11
S1 The Handling Data Cycle	11
S2 Data Collection	11
S3 Data presentation and analysis	11
S4 Data Interpretation	12
S5 Probability	12



Expectation	Торіс	Activity
Number and Algebra		
N1 Working with numbers and the	number system	
N1.1 Understand integers and place value		Multiplying by 10, 100, 1000
to deal with arbrarily large positive numbers.	Number - Multiplication & Division	Dividing by 10, 100, 1000
		Add Integers
		Subtract Integers
		More with Integers
		Problems: Add and Subtract 2
	Number - Addition & Subtraction	Column Addition 1
		Adding Colossal Columns
		Subtracting Colossal Columns
		Bar Model Problems 1
N1.2 Add, subtract, multiply and divide any		Bar Model Problems 2
number.	Number - Multiplication & Division	Multiplying by 10, 100, 1000
		Dividing by 10, 100, 1000
		Mental Methods Multiplication
		Problems: Multiply and Divide 1
		Long Multiplication
		Short Multiplication
		Mental Methods Division
		Long Division
		Short Division
N1.3 Understand and use number		Order of Operations 1
operations and the relationships between them, including inverse operations and hierarchy of operations.	Number - Multiplication & Division	Order of Operations 2
N1.4 Approximate to a given power of 10,		Rounding Significant Figures
up to three decimal places and one significant figure.	Number - Estimation and Accuracy	Rounding Decimals
N1.4h Approximate to specified or		Rounding Significant Figures
appropriate degrees of accuracy including a given number of decimal places and significant figures.	Number - Estimation and Accuracy	Rounding Decimals

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Expectation	Торіс	Activity
NI E Orden national aurahara	Number - Fractions	Ordering Fractions
NI.5 Order rational numbers.	Number - Decimals	Decimal Order
		Multiples
N1.6 The concepts and vocabulary of factor		Lowest Common Multiple
(divisor), multiple, common factor, highest		Factors
prime number and prime factor	Nomber - Properties	Highest Common Factor
decomposition.		Prime or Composite?
		Product of Prime Factors
N1.7 The terms square, positive and negative square root, cube and cube root.	Number - Indices	Square and Cube Roots
N1.8 Index notation for squares, cubes and powers of 10.	Number - Indices	Square and Cube Roots
N1.9 Index laws for multiplication and	Number Jedices	Multiplication with Indices
division of integer powers.	Normber - Indices	Index Laws and Algebra
N19h Fractional and apartive powers	Number - Indices	Negative Indices
Ni. 311 Factional and negative powers		Fractional Indices
N1.10h Interpret, order and calculate numbers written in standard index form.	Number - Estimation and Accuracy	Scientific Notation
N1.11h Surds and π in exact calculations.		
	Number - Surds	Multiplying Surds
		Dividing Surds
N1.12h Rules of arithmetic applied to		Adding and Subtracting Surds
calculations and manipulations with surds.		Expanding Surd Expressions
		Expanding Binomial Surds
		Rationalising the Denominator
N1.13h Calculate and use upper and lower bounds.	Number - Estimation and Accuracy	Error in Measurement
N1.14 Use calculators effectively and efficiently, including statistical functions.		
N1.14h Including trigonometrical functions.		
N2 Fractions, Decimals and Percentages		
N2.1 Understand equivalent fractions,		Simplifying Fractions
simplifying a fraction by cancelling all common factors.	Number - Fractions	Equivalent Fractions

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Expectation	Торіс	Activity
	Number - Freetings	Common Denominator
		No Common Denominator
N2 2 Add and subtract fractions		Add Like Mixed Numbers
		Subtract Like Mixed Numbers
		Add Unlike Mixed Numbers
		Subtract Unlike Mixed Numbers
	Number - Fractions	Fraction to Terminating Decimal
N2.3 Use decimal notation and recognise	Number Desimals	Decimals from Words to Digits 1
	Number - Decimais	Decimal Place Value
N2.4 Recognise that recurring decimals are exact fractions, and that some exact fractions are recurring decimals.	Number - Decimals	Recurring Decimals
N2.5 Understand that 'percentage' means		Modelling Percentages
'number of parts per 100' and use this to compare proportions.	Number - Percentages	Percentage Composition
	Number - Percentages	Percentage of a Quantity
NZ.0 Interpret fractions, aecimals,		Calculating Percentages
	Number - Fractions	Fraction of an Amount
	Number - Fractions	Fraction Word Problems
	Number - Percentages	Percentage Word Problems
N2.7 Calculate with fractions, decimals and		Solve Percent Equations
percentages.		Profit and Loss
		Simple Interest
		Percentage Increase and Decrease
N2.7h Including reverse percentage calculations.	Number - Percentages	Depreciation
N3 Ratio and Proportion		
N3.1 Use ratio notation, including reduction to its simplest form and its various links to fraction notation.	Number - Ratio & Proportion	Ratio
		Equivalent Ratios
		Ratio and Proportion
		Dividing a Quantity in a Ratio
N3.2 Divide a quantity in a given ratio.	Number - Ratio & Proportion	Ratio and Proportion
		Ratio Word Problems

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Expectation	Торіс	Activity
	Number - Ratio & Proportion	Rates
		Rates Calculations
		Rates Word Problems
		Direct Variation
N3.3h Repeated proportional change.		Indirect Variation
Direct and indirect proportion and		Compound Interest
exponential growth.		Compound Interest by Formula
	Number - Percentages	Comparing Loans
		Comparing Home Loans
		Depreciation
	Algebra - Non-linear Graphs	Graphing Exponentials
N4 The Language of Algebra		
N4.1 Distinguish the different roles played by letter symbols in algebra, using the correct notation.		
	Algebra - Expressions	Writing Algebraic Expressions
N4.2 Distinguish in meaning between the	Algebra - Formulae & Substitution	Real Formulae
words equation formoid, and expression.	Algebra - Linear Equations	Writing Equations
N4.2h And 'identity'.		
N5 Expressions and Equations		
	Algebra - Expressions	Like Terms: Add and Subtract
		Simplifying Expressions
		Algebraic Multiplication
N5.1 Manipulate algebraic expressions by	Alashas Europedica & Espherician	Expanding with Negatives
collecting like terms, by multiplying a single		Expand then Simplify
common factors.		Factorising
	Algebra - Expanding & Lacionsing	Factorising Expressions
		Factorising with Negatives
		Factorising with Indices
N5.1h Multiply two linear expressions.	Algebra - Expanding & Factorising	Expanding Binomial Products
NE 2h Eastarias quadratia avarassiass	Algebra - Expanding & Factorising	Special Binomial Products
including the difference of two squares.	Algebra - Quadratic Equations	Factorising Quadratics 1
		Factorising Quadratics 2
	Algebro - Expressions	Algebraic Fractions 1
N5.3h Simplify rational expressions		Algebraic Fractions 2
	Algebra - Expanding & Factorising	Factorising and Fractions 1
		Factorising and Fractions 2
N5.4. Set up and solve simple linear	Algebra - Linear Equations	Equations to Solve Problems
N5.4 Set up and solve simple linear equations.		Writing Equations
		Write an Equation: Word Problems

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Expectation	Торіс	Activity
N5.4h Including simultaneous equations in	Algebra - Simultaneous Equations	Simultaneous Equations 1
two unknowns.		Simultaneous Equations 2
		Quadratic Equations 1
		Quadratic Equations 2
NE El Calva avaidade a avaita a		Quadratic Formula
NS.Sh Solve quadratic equations.	Algebra - Quadratic Equations	Completing the Square
		Checking Quadratic Solutions
		The Discriminant
		Changing the Subject
N5.6 Derive a formula, substitute numbers	Alashan Formulas & Substitution	Substitution in Formulae
formula.	Algebra - Formulae & Substitution	More Substitution in Formulae
		Real Formulae
		Solving Inequalities 1
		Solving Inequalities 2
N5.7 Solve linear inequalities in one		Solving Inequalities 3
number line.	Algebra - Inequalities	Graphing Inequalities 1
		Graphing Inequalities 2
		Graphing Inequalities 3
N5.7h Solve linear inequalities in two variables, and represent the solution set on a suitable diagram.	Algebra - Inequalities	Linear Regions
N5.8 Use systematic trial and improvement to find approximate solutions of equations where there is no simple analytical method of solving them.	Algebra - Linear Equations	Checking Solutions
N5.9 Use algebra to support and construct arguments.		
N5.9h Use algebra to construct simple proofs.		
N6 Sequences, Functions and Gra	phs	
N6.1 Generate terms of a sequence using		Increasing Patterns
term-to-term and position-to-term	Algebra - Sequences	Decreasing Patterns
definitions of the sequence.		Describing Patterns
NG 2 Liss lisses summersizes to describe the		Find the Function Rule
N6.∠ Use linear expressions to describe the	Algebra - Sequences	Linear Expressions for the Nth Term
·····		Terms: Arithmetic Progressions
N6.3 Use the conventions for coordinates		Graphing from a Table of Values
in the plane and plot points in all four quadrants, including using geometric information.	Algebra - Linear Graphs	Reading Values from a Line

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Expectation	Торіс	Activity
N6.4 Recognise and plot equations that correspond to straight-line graphs in the coordinate plane, including finding their	Algebra - Linear Graphs	Determining a Rule for a Line
		Which Straight Line?
		Equation of a Line 1
gradients.		Gradient
		Determining a Rule for a Line
		Which Straight Line?
N6.5h Understand that the form $y = mx + c$		Equation of a Line 1
represents a straight line and that m is the	Algebra - Linear Graphs	General Form of a Line
the y- intercept.		Gradient
		Intercepts
		Modelling Linear Relationships
		Are they Parallel?
N6.6h Understand the gradients of parallel	Algebra - Linear Graphs	Are they Perpendicular?
		Perpendicular and Parallel Lines
NG 7h Find the interpreting points of the	Algebra - Simultaneous Equations	Simultaneous Equations 3
graphs of a linear and quadratic function, knowing that these are the approximate solutions of the corresponding simultaneous equations representing the linear and quadratic functions.	Algebra - Non-linear Graphs	Intersection: Line & Parabola
N6.8h Draw, sketch, recognise graphs of		Graphing Cubics
simple cubic functions, the reciprocal		Graphing Hyperbolas
function $y = 1/x$ with $x \neq 0$, the function $y = 1/x$ for integer values of y and simple	Algebra - Non-linear Graphs	Graphing Exponentials
positive values of k. the circular functions v		Sine and Cosine Curves
= sin x and y = cos x.		Identifying Graphs
N6.9h Transformation of functions.	Algebra - Non-linear Graphs	Symmetries of Graphs 1
N6.10h Construct the graphs of simple loci.		
N6.11h Construct quadratic and other functions from real life problems and plot their corresponding graphs.		
N6.11 Construct linear functions from real- life problems and plot their corresponding graphs.	Algebra - Linear Graphs	Modelling Linear Relationships
N6.12 Discuss, plot and interpret graphs (which may be non-linear) modelling real situations, including statistics contexts.		
N6.13 Generate points and plot graphs of simple quadratic functions, and use these to find approximate solutions.	Algebra - Non-linear Graphs	Graphing Parabolas



Expectation	Торіс	Activity
Geometry and Measures		
G1 Properties of angles and shape	S	
		Angles in a Revolution
a point, angles at a point on a straight line		Parallel Lines
(including right angles), perpendicular lines, and opposite angles at a vertex.	Geometry - Shape & Angle Properties	Angles and Parallel Lines
G1.2 Understand and use the angle		Angle Sum of a Triangle
properties of parallel and intersecting lines,	Geometry - Shape & Angle Properties	Exterior Angles of a Triangle
triangles and quadrilaterals.		Angle Sum of a Quadrilateral
G1.3 Calculate and use the sums of the interior and exterior angles of polygons.	Geometry - Shape & Angle Properties	Interior and Exterior Angles
G1.4 Recall the properties and definitions		Plane Figure Terms
of special types of quadrilateral, including square, rectangle, parallelogram, trapezium, kite and rhombus.	Geometry - Shape & Angle Properties	Plane Figure Theorems
G1.5 Distinguish between centre, radius, chord, diameter, circumference, tangent, arc, sector and segment.	Geometry - Shape & Angle Properties	Circle Terms
G1.5h Know and use circle theorems.	Geometry - Shape & Angle Properties	Circle Theorem
G1.6 Recognise reflection and rotation	Goometry Transformations	Rotational Symmetry
symmetry of 2D shapes.	Geomeny - Transformations	Symmetry or Not?
G1.7 Describe and transform 2D shapes	by Geometry - Transformations	Rotations: Coordinate Plane
using single or combined rotations,		Transformations: Coordinate Plane
reflections, translations, or enlargements by a positive scale factor and distinguish properties that are preserved under particular transformations.		Scale Factor
		Similar Figures
		Using Similar Triangles
G1.8 Understand congruence and similarity.	Geometry - Transformations	Scale Factor
		Congruent Triangles
		Congruent Figures (Grid)
		Congruent Figures: Find Values
G18h Ise similarity laderstand and use		Congruent Triangles
conditions for congruent triangles.	Geometry - Transformations	Using Similar Triangles
		Similarity Proofs
G2 Geometrical reasoning and cal	culation	
G2.1 Use Pythagoros' theorem.	Geometry - Trigonometry	Pythagoras' Theorem
		Pythagorean Triads
G2.1h Extend to use in 3D.	Geometry - Volume & Surface Area	Volume: Triangular Prisms



Expectation	Торіс	Activity
		Hypotenuse, Adjacent, Opposite
		Sin A
		Cos A
		Tan A
		Find Unknown Sides
G2.2h Use the trigonometrical ratios and		Find Unknown Angles
the sine and cosine rules to solve 2D and	Geometry - Trigonometry	Elevation and Depression
3D problems.		Bearings
		Sine Rule 1
		Cosine Rule 1
		Sine Rule 2
		Cosine Rule 2
		3D Trigonometry
G2.3 Justify simple geometrical properties.	Geometry - Shape & Angle Properties	Plane Figure Theorems
G2.3h Simple geometrical proofs.	Geometry - Shape & Angle Properties	Circle Theorem
G2.4 Use 2D representations of 3D		
snapes.		
G31Use and interpret maps and scale		Scole
drawings.	Measure - Scales & Conversions	
G3.2 Understand the effect of enlargement for perimeter, area and volume of shapes and solids.	Measure - Scales & Conversions	Perimeter, Area, Dimension Change
G3.2h Use the effect of enlargement for perimeter, area and volume in calculations.	Measure - Scales & Conversions	Similar Areas and Volumes
G3.3 Interpret scales on a range of measuring instruments and recognise the inaccuracy of measurements.	Number - Estimation and Accuracy	Error in Measurement
		Grams and Milligrams
		Grams and Kilograms
		Converting Units of Mass
G3.4 Convert measurements from one unit	Measure - Scales & Conversions	Centimetres and Metres
		Converting Units of Length
		Converting Units of Area
		Converting Volume
G3.5 Make sensible estimates of a range of measures.		
G3.6 Understand and use bearings.	Geometry - Trigonometry	Bearings

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Higher

calculate the resultant of two vectors;

using vector methods.

understand and use the commutative and associative properties of vector addition; solve simple geometrical problems in 2D

Expectation	Торіс	Activity
		Average Speed
G3.7 Understand and use compound Number - Ratio & P	Number - Ratio & Proportion	Time Taken
medsores.		Distance Travelled
G3.8 Measure and draw lines and angles.	Geometry - Shape & Angle Properties	Measuring Angles
G3.9 Draw triangles and other 2D shapes using a ruler and protractor.		
G3.10 Use straight edge and a pair of compasses to do constructions.		
G3.11 Construct loci.		
G4 Mensuration		
G4.1 Calculate perimeters and areas of		Perimeter: Composite Shapes
shapes made from triangles and rectangles.	Geometry - Perimeter & Area	Area: Composite Shapes
G4.1h Extend to other compound shapes.		
	Geometry - Trigonometry	Area Rule 1
G4.2h Calculate the area of a triangle using ½ab sin C.		Area Rule 2
		Area Problems
G4.3 Calculate circumferences and areas	Geometry Perimeter & Area	Circumference: Circles
of circles.	Cecimenty Tenmeler & Area	Area: Circles
G4.3h Calculate lengths of arcs and areas	Coometry Perimeter & Area	Perimeter and Circles
of sectors.		Area: Sectors
		Volume: Prisms
G4.4 Calculate volumes of right prisms	Geometry - Volume & Surface Area	Volume: Rectangular Prisms 1
cuboids.	Geometry - volume & Sunace Area	Volume: Triangular Prisms
		Volume: Cylinders
G4.5h Solve mensuration problems involving more complex shapes and solids.		
G5 Vectors		
G5.1 Understand and use vector notation		
for translations.		
G5.1h Understand and use vector notation;		Vector Magnitude (Column)
calculate, and represent graphically the		Vector Operations 1 (Column)
sum of two vectors, the difference of two		Scalar Product (Vector Form)

Geometry - Transformations



Expectation	Торіс	Activity
Statistics and Probability		
S1 The Handling Data Cycle		
S1 Understand and use the statistical problem solving process which involves - specifying the problem and planning - collecting data processing and presenting the data - interpreting and discussing the results.		
S2 Data Collection	•	·
S2.1 Types of data: qualitative, discrete, continuous. Use of grouped and ungrouped data.	Statistics - Interpretation	Data Types
S2.2 Identify possible sources of bias.		
S2.3 Design an experiment or survey.		
S2.4 Design data-collection sheets distinguishing between different types of data.		
	Statistics - Interpretation	Mean
		Median
C2 E Estra et dete forme activited to black and		Mode
S2.5 Extract data from printed tables and lists.		Mean from Frequency Table
		Median from Frequency
		Mode from Frequency Table
	Statistics - Presentation	Tally Charts
S3 Data presentation and analysis		
	Probability	Probability Tables
s3.1 Design and use two-way tables for arouped and unarouped data.		Two-way Table Probability
		Dice and Coins
		Scatter Plots
S3.2 Produce charts and diagrams for		Stem and Leaf Introduction
various data types. Scatter graphs, stem-		Tally Charts
and-leat, tally charts, pictograms, bar charts, dual bar charts, pie charts, line	Statistics - Presentation	Pie Charts
graphs, frequency polygons, histograms		Pie Chart Calculations
with equal class intervals.		Histograms
		Frequency Histograms
S3.2h Histograms with unequal class intervals, box plots, cumulative frequency diagrams, relative frequency diagrams.		Box-and-Whisker Plots 1
	Statistics - Presentation	Box-and-Whisker Plots 2
		Cumulative Frequency Table
		Cumulative Frequency Histogram
		Histogram or Polygon?



Expectation	Торіс	Activity
		Mean
		Median
		Mode
	Statistics - Interpretation	Data Extremes and Range
		Mean from Frequency Table
53.3 Calculate median, mean, range, mode		Median from Frequency
		Mode from Frequency Table
		Median from Stem and Leaf Plot
		Mode from Stem and Leaf Plot
		Data Extremes and Range
		Grouping Data and Modal Class
S3.3h Quartiles and inter-quartile range.	Statistics - Interpretation	Calculating Interquartile Range
S4 Data Interpretation		
S4.1 Interpret a wide range of graphs and		
diagrams and draw conclusions.		
exceptions.		
S4.3 Recognise correlation and draw	Statistics - Interpretation	Correlation
and/or use lines of best fit by eye, understanding what these represent.	Statistics - Presentation	Scatter Plots
S4.4 Compare distributions and make inferences.		
S5 Probability		
S5.1 Understand and use the vocabulary of probability and the probability scale.	Probability	Probability Scale
S5.2 Ladorstood ood uso astimatos ar		Relative Frequency
measures of probability from theoretical		Simple Probability
models (including equally likely outcomes),	Probability	Find the Probability
or from relative frequency.		Probability Tables
S5.3 List all outcomes for single events,		How Many Combinations?
and for two successive events, in a systematic way and derive related probabilities.	Probability	Counting Techniques 1
S5.4 Identify different mutually exclusive outcomes and know that the sum of the probabilities of all these outcomes is 1.	Probability	Complementary Events



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