

PUMA KS3 Standardised Tests Curriculum Maps

Year 7: Autumn		
Strand	Substrand	Content
NUMBER (N)	N1 The number system	<ul style="list-style-type: none"> Consolidate their numerical and mathematical capability from Key Stage 2. Understand and use place value for decimals, measures and integers of any size. Order decimals. Use the symbols =, ≠, <, >, ≤ and ≥. Use standard units of length and with decimal quantities. Use the concepts and vocabulary of factors (or divisors). Round numbers and measures to an appropriate degree of accuracy (for example, to a number of decimal places) Extend their understanding of the number system and place value to include decimals.
	N2 Calculation	<ul style="list-style-type: none"> Use the four operations applied to integers. Use square numbers and recognise them as a power of 2.
	N3 Fractions, decimals and percentages	<ul style="list-style-type: none"> Use the number line as a model for ordering of the real numbers.
ALGEBRA (A)	A1 Methods	
	A2 Graphs	
	A3 Sequences	
RATIO, PROPORTION AND RATES OF CHANGE (R)	R1 Ratio	<ul style="list-style-type: none"> Change freely between related standard units (e.g. time, length and mass).
	R2 Proportion	
	R3 Rates of change	
GEOMETRY AND MEASURES (G)	G1 Measurement	<ul style="list-style-type: none"> Calculate and solve problems involving perimeters of 2-D (rectilinear) shapes.
	G2 Shape	<ul style="list-style-type: none"> Use language and properties precisely to analyse 2-D and 3-D shapes.
	G3 Transformations	<ul style="list-style-type: none"> Identify line symmetry in 2-D shapes.
PROBABILITY (P)		
STATISTICS (S)		<ul style="list-style-type: none"> Construct and interpret tables, charts and diagrams including pictograms for categorical data.

Year 8: Autumn		
Strand	Substrand	Content
NUMBER (N)	N1 The number system	<ul style="list-style-type: none"> Use the concepts and vocabulary of common factors and common multiples.
	N2 Calculation	<ul style="list-style-type: none"> Use the four operations applied to integers (including formal written methods), both positive and negative.
	N3 Fractions, decimals and percentages	<ul style="list-style-type: none"> Interpret percentages and percentage changes as fractions or decimals. Interpret fractions as operators. Express one quantity as a percentage of another.
ALGEBRA (A)	A1 Methods	<ul style="list-style-type: none"> Substitute numerical values into formulae and expressions, including scientific formulae.
	A2 Graphs	
	A3 Sequences	<ul style="list-style-type: none"> Generate terms of a sequence from either a term-to-term or a position-to-term rule.
RATIO, PROPORTION AND RATES OF CHANGE (R)	R1 Ratio	<ul style="list-style-type: none"> Express one quantity as a fraction of another, where the fraction is less than 1 and greater than 1.
	R2 Proportion	<ul style="list-style-type: none"> Solve problems involving direct proportion.
	R3 Rates of change	
GEOMETRY AND MEASURES (G)	G1 Measurement	<ul style="list-style-type: none"> Calculate and solve problems involving perimeters of 2-D shapes.
	G2 Shape	<ul style="list-style-type: none"> Derive and illustrate properties of plane figures (for example, equal lengths and angles) using appropriate language. Apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles. 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.
	G3 Transformations	<ul style="list-style-type: none"> Describe lines and polygons that are reflectively symmetric. Identify properties of and describe the results of reflections applied to given figures.
PROBABILITY (P)		<ul style="list-style-type: none"> 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.
STATISTICS (S)		<ul style="list-style-type: none"> Describe, interpret and compare observed distributions of a single variable through appropriate measures of central tendency (mean, mode, median) and spread (range). Construct and interpret tables, charts and diagrams including pictograms for categorical data.

Year 9: Autumn		
Strand	Substrand	Content
NUMBER (N)	N1 The number system	<ul style="list-style-type: none"> Use approximation through rounding to estimate answers.
	N2 Calculation	<ul style="list-style-type: none"> Use square numbers and recognise them as a power of 2. Use the four operations, applied to proper and improper fractions, and mixed numbers.
	N3 Fractions, decimals and percentages	<ul style="list-style-type: none"> Interpret fractions and percentages as operators. Solve problems involving percentage change, including simple interest in financial mathematics. Work interchangeably with terminating decimals and their corresponding fractions.
ALGEBRA (A)	A1 Methods	<ul style="list-style-type: none"> Use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement). Rearrange formulae to change the subject. Simplify and manipulate algebraic expressions to maintain equivalence by taking out common factors.
	A2 Graphs	<ul style="list-style-type: none"> Recognise, sketch and produce graphs of linear functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane.
	A3 Sequences	
RATIO, PROPORTION AND RATES OF CHANGE (R)	R1 Ratio	
	R2 Proportion	
	R3 Rates of change	<ul style="list-style-type: none"> Use compound measures such as unit pricing to solve problems.
GEOMETRY AND MEASURES (G)	G1 Measurement	<ul style="list-style-type: none"> Derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms, trapezia, volume of cuboids (including cubes). Calculate and solve problems involving perimeters of 2-D shapes (including circles) and areas of circles.
	G2 Shape	
	G3 Transformations	
PROBABILITY (P)		<ul style="list-style-type: none"> Understand that the probabilities of all possible outcomes sum to 1. 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.
STATISTICS (S)		<ul style="list-style-type: none"> Describe simple mathematical relationships between two variables (bivariate data) in observational and experimental contexts and illustrate using scatter graphs. Describe, interpret and compare observed distributions of a single variable through appropriate measures of central tendency (mean, mode, median) and spread (range).

Year 7: Spring		
Strand	Substrand	Content
NUMBER (N)	N1 The number system	<ul style="list-style-type: none"> Order positive and negative integers and fractions. Understand and use place value for decimals, measures and integers of any size. Use the number line as a model for ordering of the real numbers. Use the concepts and vocabulary of factors. Use standard units of mass, length, time and money, including with decimal quantities. Round numbers and measures to an appropriate degree of accuracy (e.g. to a number of decimal places). Use the concepts and vocabulary of multiples. Use the symbols =, ≠, <, >, ≤, ≥.
	N2 Calculation	<ul style="list-style-type: none"> Use the four operations, including formal written methods, applied to integers and fractions – both positive and negative (addition and subtraction only for negative integers). Use integer powers and associated real roots (square, cube and higher).
	N3 Fractions, decimals and percentages	<ul style="list-style-type: none"> Order decimals.
ALGEBRA (A)	A1 Methods	
	A2 Graphs	
	A3 Sequences	
RATIO, PROPORTION AND RATES OF CHANGE (R)	R1 Ratio	<ul style="list-style-type: none"> Express one quantity as a fraction of another, where the fraction is less than 1.
	R2 Proportion	
	R3 Rates of change	
GEOMETRY AND MEASURES (G)	G1 Measurement	<ul style="list-style-type: none"> Draw and measure line segments and angles in geometric figures. Calculate and solve problems involving perimeters of 2-D shapes.
	G2 Shape	<ul style="list-style-type: none"> Apply the properties of angles at a point, angles at a point on a straight line and vertically opposite angles. Use the properties of faces, surfaces, edges and vertices of cubes and cuboids. Derive and apply formulae to calculate and solve problems involving perimeter of triangles. Begin to reason deductively in geometry.
	G3 Transformations	<ul style="list-style-type: none"> Identify properties, and describe the results, of translations applied to given figures (no vectors). Identify line symmetry in 2-D shapes
PROBABILITY (P)		
STATISTICS (S)		<ul style="list-style-type: none"> Construct and interpret bar charts for categorical data.

Year 8: Spring		
Strand	Substrand	Content
NUMBER (N)	N1 The number system	<ul style="list-style-type: none"> Use standard units of time, money and other measures, including with decimal quantities. Use the concepts and vocabulary of prime numbers. Use the concepts and vocabulary of multiples.
	N2 Calculation	<ul style="list-style-type: none"> Understand and use priority of operations including brackets and powers. Recognise powers of 2, 3, 4 and 5.
	N3 Fractions, decimals and percentages	<ul style="list-style-type: none"> Interpret percentages as operators. Define percentage as 'number of parts per hundred'.
ALGEBRA (A)	A1 Methods	<ul style="list-style-type: none"> Use and interpret algebraic notation, including: <ul style="list-style-type: none"> ab in place of $a \times b$ $3y$ in place of $y + y + y$ and $3 \times y$ brackets. Simplify and manipulate algebraic expressions to maintain equivalence by: <ul style="list-style-type: none"> collecting like terms multiplying a single term over a bracket. Understand and use standard mathematical formulae. Use algebraic methods to solve linear equations in one variable.
	A2 Graphs	<ul style="list-style-type: none"> Find approximate solutions to contextual problems from given graphs of a variety of functions.
	A3 Sequences	<ul style="list-style-type: none"> Generate terms of a sequence from either a term-to-term or a position-to-term rule.
RATIO, PROPORTION AND RATES OF CHANGE (R)	R1 Ratio	<ul style="list-style-type: none"> Use ratio notation, including reduction to simplest form. Divide a given quantity into two parts in a given part:part or part:whole ratio. Express the division of a quantity into two parts as a ratio.
	R2 Proportion	
	R3 Rates of change	
GEOMETRY AND MEASURES (G)	G1 Measurement	
	G2 Shape	<ul style="list-style-type: none"> 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.
	G3 Transformations	<ul style="list-style-type: none"> Identify properties, and describe the results, of rotations and reflections applied to given figures.
PROBABILITY (P)		<ul style="list-style-type: none"> 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.
STATISTICS (S)		<ul style="list-style-type: none"> Construct and interpret tables, charts and diagrams including pictograms for categorical data. Describe, interpret and compare observed distributions of a single variable through appropriate measures of central tendency (mean, mode, median) and spread (range).

Year 9: Spring		
Strand	Substrand	Content
NUMBER (N)	N1 The number system	<ul style="list-style-type: none"> Use the concepts and vocabulary of highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation property. Round numbers and measures to an appropriate degree of accuracy. Use standard units of mass, length, time, money and other measures, including with decimal quantities.
	N2 Calculation	<ul style="list-style-type: none"> Use integer powers and associated real roots (square, cube and higher). Use the four operations, including formal written methods, applied to integers and decimals.
	N3 Fractions, decimals and percentages	<ul style="list-style-type: none"> Solve problems involving percentage change, including: percentage increase, decrease and original value problems and simple interest in financial mathematics.
ALGEBRA (A)	A1 Methods	<ul style="list-style-type: none"> Rearrange formulae to change the subject.
	A2 Graphs	<ul style="list-style-type: none"> Calculate and interpret gradients and intercepts of graphs of linear equations numerically, graphically and algebraically. Recognise, sketch and produce graphs of linear functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane.
	A3 Sequences	<ul style="list-style-type: none"> Generate terms of a sequence from either a term-to-term or a position-to-term rule. Recognise geometric sequences and appreciate other sequences that arise.
RATIO, PROPORTION AND RATES OF CHANGE (R)	R1 Ratio	<ul style="list-style-type: none"> Divide a given quantity into two parts in a given part:part or part:whole ratio.
	R2 Proportion	
	R3 Rates of change	
GEOMETRY AND MEASURES (G)	G1 Measurement	<ul style="list-style-type: none"> Derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles and parallelograms. Calculate and solve problems involving: perimeters of 2-D shapes (including circles), areas of circles.
	G2 Shape	<ul style="list-style-type: none"> Understand and use the relationship between parallel lines and alternate and corresponding angles. 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. Apply the properties of angles at a point, angles at a point on a straight line and vertically opposite angles.
	G3 Transformations	
PROBABILITY (P)		<ul style="list-style-type: none"> Understand that the probabilities of all possible outcomes sum to 1. 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.
STATISTICS (S)		<ul style="list-style-type: none"> Describe simple mathematical relationships between two variables (bivariate data) in observational and experimental contexts and illustrate using scatter graphs.

		<ul style="list-style-type: none"> Describe, interpret and compare observed distributions of a single variable through appropriate measures of central tendency (mean, mode, median) and spread (range).
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Year 7: Summer		
Strand	Substrand	Content
NUMBER (N)	N1 The number system	<ul style="list-style-type: none"> Use the concepts and vocabulary of prime numbers. Use the number line as a model for ordering of the real numbers. Round numbers and measures to an appropriate degree of accuracy. Use the symbols =, ≠, <, >, ≤, ≥.
	N2 Calculation	<ul style="list-style-type: none"> Use the four operations, including formal written methods, applied to integers and decimals, all both positive and negative, recognise and use relationships between operations including inverse operations. Recognise and use relationships between operations, including inverse operations.
	N3 Fractions, decimals and percentages	<ul style="list-style-type: none"> Work interchangeably with <i>simple</i> terminating decimals and their corresponding fractions (such as 3.5 and $\frac{7}{2}$). Interpret fractions and percentages as operators.
ALGEBRA (A)	A1 Methods	<ul style="list-style-type: none"> Substitute numerical values into formulae and expressions.
	A2 Graphs	<ul style="list-style-type: none"> Work with coordinates in all four quadrants.
	A3 Sequences	<ul style="list-style-type: none"> Generate terms of a sequence from either a term-to-term or a position-to-term rule.
RATIO, PROPORTION AND RATES OF CHANGE (R)	R1 Ratio	
	R2 Proportion	<ul style="list-style-type: none"> Solve problems involving direct proportion.
	R3 Rates of change	
GEOMETRY AND MEASURES (G)	G1 Measurement	
	G2 Shape	<ul style="list-style-type: none"> Use the properties of faces, surfaces, edges and vertices of cubes and cuboids to solve problems in 3-D. Derive and illustrate properties of triangles and quadrilaterals, (e.g. equal lengths and angles) using appropriate language and technologies. Apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles.
	G3 Transformations	<ul style="list-style-type: none"> Identify properties, and describe the results, of reflections applied to given figures.
PROBABILITY (P)		<ul style="list-style-type: none"> 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.
STATISTICS (S)		<ul style="list-style-type: none"> Construct and interpret pie charts for categorical data.

Year 8: Summer		
Strand	Substrand	Content
NUMBER (N)	N1 The number system	<ul style="list-style-type: none"> Use the symbols =, ≠, <, >, ≤, ≥. Order positive and negative integers and fractions.
	N2 Calculation	<ul style="list-style-type: none"> Use the four operations, including formal written methods, applied to integers and decimals, all both positive and negative. Use integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5.
	N3 Fractions, decimals and percentages	<ul style="list-style-type: none"> Work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and $\frac{7}{2}$ or 0.375 and $\frac{3}{8}$). Use the four operations, applied to proper and improper fractions, and mixed numbers.
ALGEBRA (A)	A1 Methods	<ul style="list-style-type: none"> Use and interpret algebraic notation, including: <ul style="list-style-type: none"> a^2 in place of $a \times a$ a^3 in place of $a \times a \times a$ a^2b in place of $a \times a \times b$. Use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement). Substitute numerical values into formulae and expressions, including scientific formulae. Rearrange formulae to change the subject.
	A2 Graphs	
	A3 Sequences	<ul style="list-style-type: none"> Recognise arithmetic sequences and find the nth term. Generate terms of a sequence from either a term-to-term or a position-to-term rule.
RATIO, PROPORTION AND RATES OF CHANGE (R)	R1 Ratio	
	R2 Proportion	<ul style="list-style-type: none"> Solve problems involving percentage change, including percentage increase and decrease. Solve problems involving direct proportion.
	R3 Rates of change	
GEOMETRY AND MEASURES (G)	G1 Measurement	<ul style="list-style-type: none"> Derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms, trapezia and volume of cuboids (including cubes). Interpret scale drawings.
	G2 Shape	

	G3 Transformations	<ul style="list-style-type: none"> Construct similar shapes by enlargement, with and without coordinate grids.
PROBABILITY (P)		<ul style="list-style-type: none"> Understand that the probabilities of all possible outcomes sum to 1. 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
STATISTICS (S)		<ul style="list-style-type: none"> Construct and interpret tables, charts and diagrams including pictograms for categorical data.

Year 9: Summer		
Strand	Substrand	Content
NUMBER (N)	N1 The number system	<ul style="list-style-type: none"> Round numbers and measures to an appropriate degree of accuracy (e.g. to a number of significant figures). Use the concepts and vocabulary of highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation property.
	N2 Calculation	<ul style="list-style-type: none"> Use the four operations, including formal written methods, applied to proper and improper fractions, and mixed numbers. Use integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5.
	N3 Fractions, decimals and percentages	<ul style="list-style-type: none"> Solve problems involving percentage change including simple interest in financial mathematics.
ALGEBRA (A)	A1 Methods	<ul style="list-style-type: none"> Use and interpret algebraic notation including <ul style="list-style-type: none"> $\frac{a}{b}$ in place of $a \div b$. a^2 in place of $a \times a$ a^3 in place of $a \times a \times a$ a^2b in place of $a \times a \times b$. Simplify and manipulate algebraic expressions to maintain equivalence by expanding products of two binomials. Use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement). Rearrange formulae to change the subject.
	A2 Graphs	<ul style="list-style-type: none"> Recognise, sketch and produce graphs of linear functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane. Work with coordinates in all four quadrants.
	A3 Sequences	<ul style="list-style-type: none"> Recognise arithmetic sequences and find the nth term. Generate terms of a sequence from either a term-to-term or a position-to-term rule.
RATIO, PROPORTION AND RATES OF CHANGE (R)	R1 Ratio	<ul style="list-style-type: none"> Use scale factors, scale diagrams and maps.
	R2 Proportion	<ul style="list-style-type: none"> Solve problems involving percentage change, including percentage increase and decrease.
	R3 Rates of change	<ul style="list-style-type: none"> Use compound units such as speed.
GEOMETRY AND MEASURES (G)	G1 Measurement	<ul style="list-style-type: none"> Derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles and parallelograms. Calculate and solve problems involving: perimeters of 2-D shapes (including circles), areas of circles.
	G2 Shape	<ul style="list-style-type: none"> 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.
	G3 Transformations	
PROBABILITY (P)		<ul style="list-style-type: none"> Generate theoretical sample spaces for single and combined events with equally likely, mutually exclusive outcomes and use these to calculate theoretical probabilities.
STATISTICS (S)		<ul style="list-style-type: none"> Describe simple mathematical relationships between two variables (bivariate data) in observational and experimental contexts and illustrate using scatter graphs.