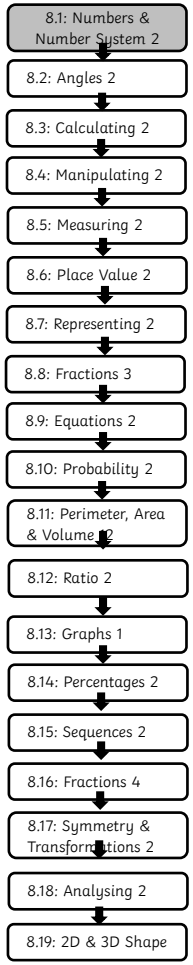
Personalised Learning Checklist (PLC): Year 8 Support



Unit 1 – Numbers and the Number System	Sparx Codes
Find multiples and lowest common multiples of numbers	M227
Know whether a number divides by 2, 3, 4, 5, 9 or 10 Find factors and highest common factors of numbers	M823 M698
Recognise the prime numbers 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, …	M322
Find the prime factors of a number using a calculator or factor tree	M108
Recognise and use square numbers 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, …	M135
Recognise and use cube numbers 1, 8, 27, 64, 125, …	M135
Read, write and evaluate powers	M135
Find square roots, cube roots and other roots (using √ symbols)	M135
Use a scientific calculator to find powers and roots	M135

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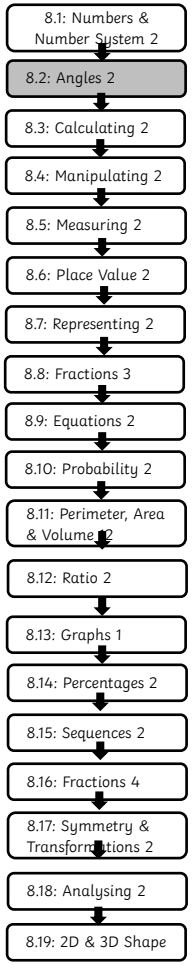

Unit 2 – Angles	Sparx Codes
Recognise and use angle rule: vertically opposite angles are equal	M163
Recognise and use angle rule: angles around a point add to 360°	M818
Recognise and use angle rule: angles at a point on a line add to 180°	M818
Recognise pairs of alternate or corresponding angles	M606
Work out missing angles in diagrams involving parallel lines	M606
Know that the angles in a triangle add to 180 degrees	M351
Know that the angles in an equilateral triangle are 60 degrees	M351
Find missing angles in isosceles triangles	M351
Know that the angles in a quadrilateral add to 360 degrees	M679

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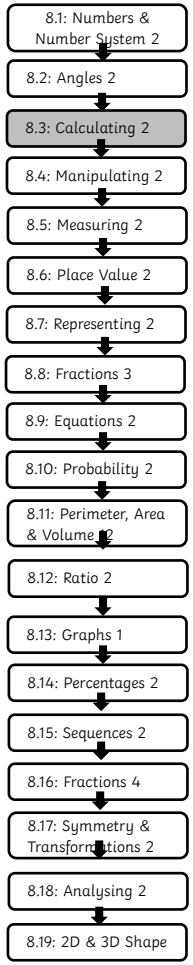

Unit 3 – Calculating	Sparx Codes
Add whole numbers and decimals using a written method	M928 M429
Subtract whole numbers and decimals using a written method	M347 M152
Multiply with whole numbers	M187 M113
Divide a whole number or decimal by a one or two digit number	M354 M873 M262
Add and subtract with negative numbers	M106
Order of operations (BIDMAS)	M521
Use a scientific calculator	M757

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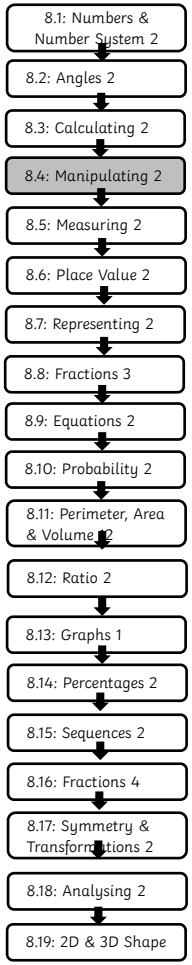

Unit 4 – Manipulating	Sparx Codes
Recognise: expression, equation, inequality, term, formulae, function	M830
Know and use basic algebraic notation (the 'rules' of algebra): (ab in place of a x b, 3y in place of y + y + y and 3 x y, a^2 in place of a x a, a^3 in place of a x a x a, $^a/_b$ in place of a ÷ b, use of brackets, a^2b in place of a x a x b)	M813
Write simple expressions from words	M813
Simplify expressions by collecting like terms	M795 M531 M949
Simplify expressions using rules of indices for multiply and divide	M120
Expand a single bracket	M237 M792
Substitute positive/negative numbers into expressions and formulae	M327 M208 M979

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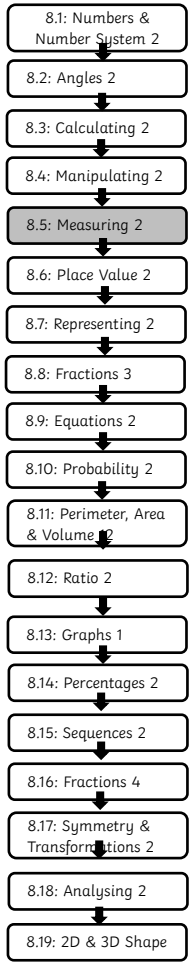

Unit 5 – Measuring	Sparx Codes
Understand and use labelling notation for angles Use a protractor to measure and draw angles	M780 M331
Understand and use labelling notation for lengths Use a ruler to measure and draw line segments	M985
Use compasses to draw arcs and circles	M196
Use ruler and protractor to construct a triangle from a description	M565
Use and interpret scale factors, scale diagrams and maps	M112
Know that similar shapes are enlargements and angles are equal	M178
Understand enlargement	M178
Enlarge a shape	M178

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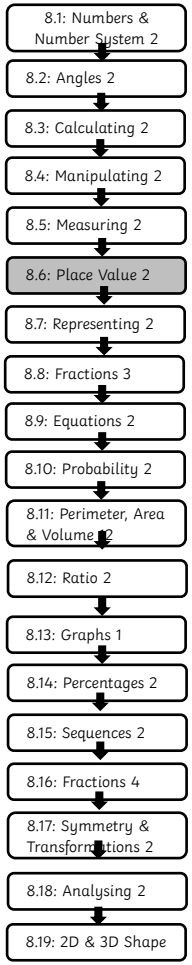

Unit 6 – Place Value	Sparx Codes
Use the signs <, ≤, >, ≥, =, ≠ to compare numbers Use a compound inequality to compare numbers (e.g. -1<0.5<4) < (less than) ≤ (less than or equal to) > greater than ≥ greater than or equal to = equal to ≠ not equal to	
Read and write numbers, identify values of given digits	M704 M522
Order a set of integers and decimals	M553
Round a number to the nearest 1000, 100, 10 or whole number	M111
Round a number to a specified number of decimal places	M431
Estimate and check if solutions are the correct size	M878

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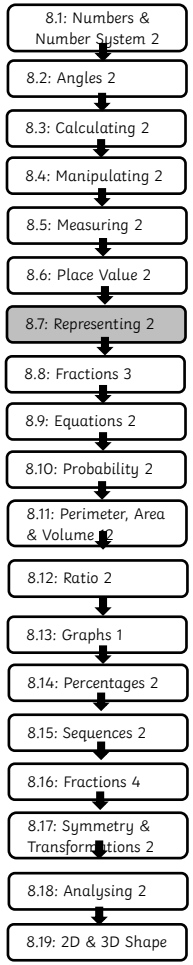

Unit 7 – Representing 2	Sparx Codes
Construct and interpret frequency tables	M597
Construct and interpret pictograms	M644
Construct and interpret bar charts Construct and interpret comparative bar charts	M460 M738
Construct and interpret pie charts	M574 M165
Plot bivariate data on a scatter graph Understand positive and negative correlation Draw and use a line of best fit on a scatter graph	M769 M596
Know interpolation is estimating within data values on a graph and this is generally reliable	
Know extrapolation is estimating outside data values on a graph and this is unreliable	

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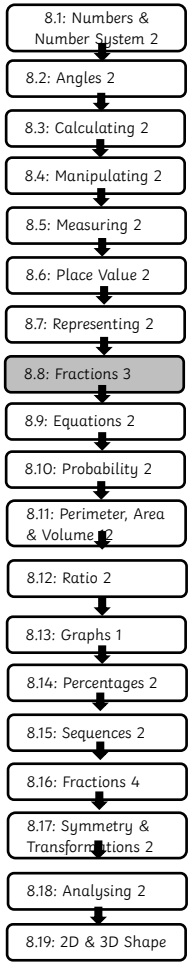

Unit 8 – Fractions 3	Sparx Codes
Shade or interpret fraction diagrams Construct fractions	M158 M939
Convert between improper and mixed numbers	M601
Equivalent fractions	M410
Simplify fractions	M671
Order fractions using common denominators or by writing as decimals	M335
Find a number between two fractions or integers	
Know fractions represent division & decide if a fraction is terminating or recurring	
Convert between fractions and decimals with or without a calculator	M958
Convert fractions to recurring decimals	M922
Convert recurring decimals to fractions on a calculator and use recurring decimal notation	M701
Find a fraction of an amount with or without a calculator	M695 M684
Find the original amount from a fraction	
Write one quantity as a fraction of another	
Understand reciprocals and find the reciprocal of an integer or fraction	

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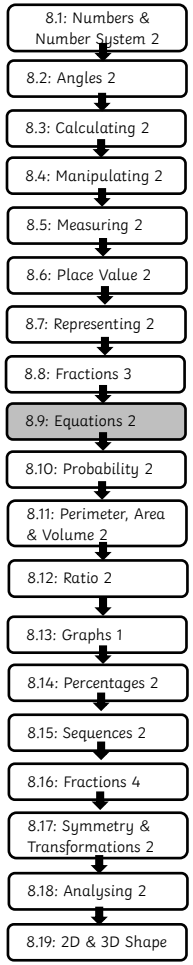

Unit 9 – Equations 2	Sparx Codes
Solve equations with one step, or two or more steps	M707 M509
Solve equations when the solution is a positive or negative integer, or fraction	
Solve equations involving brackets	
Solve equations where the unknown is the numerator of a fraction	

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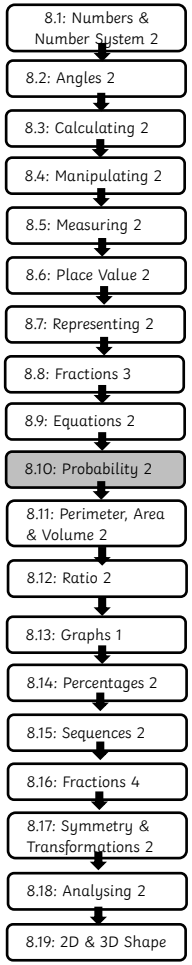

Unit 10 – Probability 2	Sparx Codes
Understand probability phrases	M655
Understand the 0 – 1 probability scale Understand randomness, fairness and bias Understand equally or unequally likely events	
Calculate probability and write it as a fraction, decimal or percentage	M941 M938
Sample space diagrams	M718
Know mutually exclusive events can't happen at the same time, and the sum of their probabilities is 1 Probability of mutually exclusive events	M755
Expected results from repeated experiments	M206
Calculating experimental probabilities	M332

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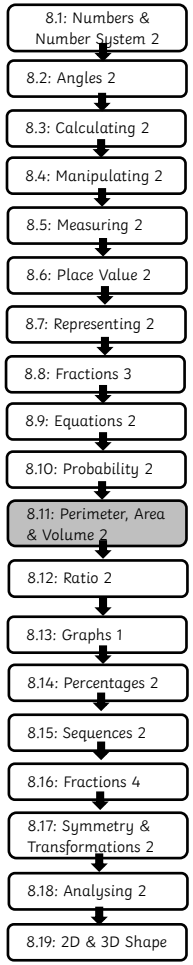

Unit 11 – Perimeter, Area & Volume 2	Sparx Codes
Find the perimeter of a shape or composite shape	M920 M635 M690
Area of a rectangle (Area = length x width)	M390
Area of a triangle (Area = $\frac{1}{2}$ x base x height)	M610
Area of a parallelogram (Area = base x height)	M291
Area of a trapezium (Area = $\frac{1}{2}$(a + b) x height)	M705
Area of compound shapes involving triangles and rectangles	M269 M996
Volume of a cuboid (V = length x width x height)	M765
Find the surface area of a cuboid	M884 M534
Volume of a prism (V = area of cross-section x height)	M722

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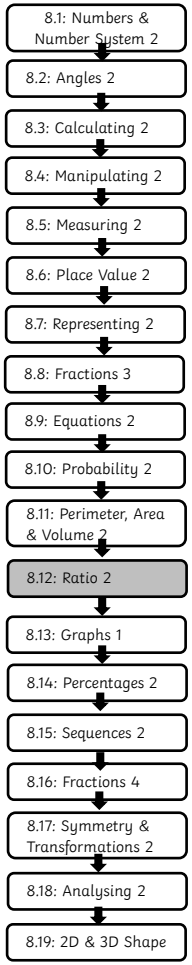

Unit 12 – Ratio 2	Sparx Codes
Use ratio notation to describe the comparison of quantities	M885
Simplify ratios, including those with units	M885
Convert between ratios and fractions	M267
Be familiar with a ratio table and multipliers	
Find missing values when given a ratio and the whole or one part	M801
Divide a quantity into parts using a given ratio	M525
Use ratios in real contexts such as map scales, conversions, recipes	
Solve problems involving direct proportion	M478

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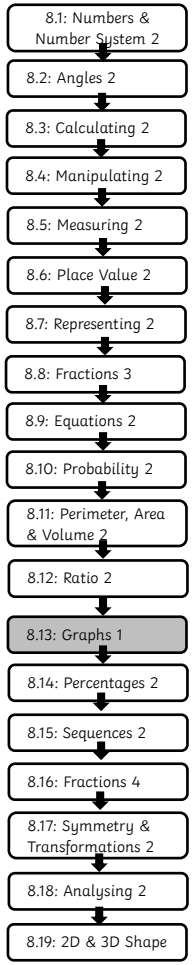

Unit 13 – Graphs 1	Sparx Codes
Read and plot coordinates	M618
Plot graphs of linear functions written in the form $y = ax + b$	M932
Read values for x or y from a graph	
Know linear graphs have an intercept and rate of change (gradient)	

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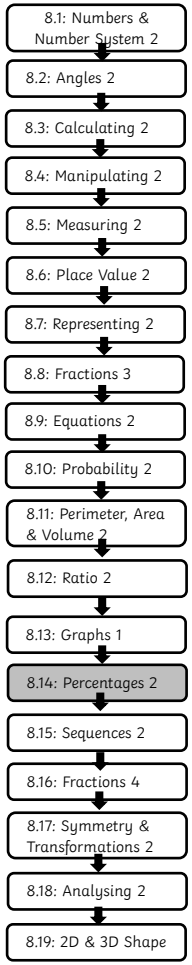

Unit 14 – Percentages 2	Sparx Codes
Know that percentage means parts per hundred	
Write a percentage as a fraction and decimal	M264
Convert between fractions, decimals and percentages with or without a calculator	
Know the calculator converter function keys	
Find a percentage of an amount without a calculator	M437
Calculate the percentage of an amount with a calculator using a decimal or fraction multiplier	M905
Increase or decrease by a percentage without a calculator	M476
Increase or decrease by a percentage with a calculator	M533
Work with percentages over 100%	

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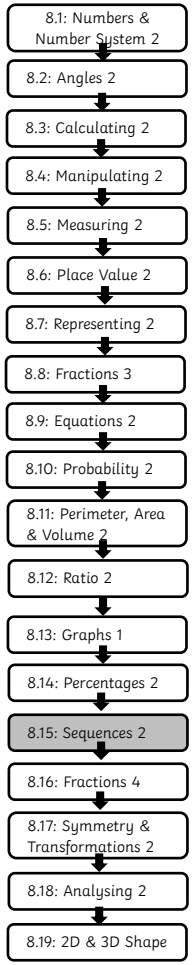

Unit 15 – Sequences 2	Sparx Codes
Use a term-to-term rule to generate a sequence	M381 M241
Be able to identify a term-to-term rule and continue the sequence	
Understand that a sequence can be generated and described by a position-to-term rule	
Substitute numbers into a position-to-term rule	M166
Understand the features of an arithmetic sequence and be able to recognise one (term-to-term rule involves addition or subtraction)	
Find the nth term of an arithmetic progression	M991
Understand the features of a geometric sequence and be able to recognise one (term-to-term rule involves multiplying or dividing)	
Understand the features of, and recognise, number sequences for: Square numbers (1, 4, 9, 16, 25, 36, 49, 64, 81, 100…) Cube numbers (1, 8, 27, 64, 125, …) Triangle numbers (1, 3, 6, 10, 15, 21, 28, 36, …)	M981
Appreciate there are other sequences such as quadratic and Fibonacci (eg 1, 1, 2, 3, 5, 8, 13, …)	M418

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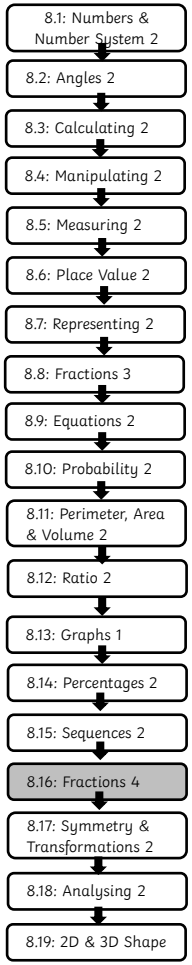

Unit 16 – Fractions 4	Sparx Codes
Add and subtract fractions with different denominators	M835
Add and subtract mixed fractions	M931
Multiply an integer by a fraction Multiply two fractions together	M157
Multiply by a mixed fraction	M197
Divide an integer by a fraction Divide a fraction by an integer Divide a fraction by a fraction	M110
Divide with mixed fractions	M265
Use a calculator to complete fraction or mixed fraction calculations	

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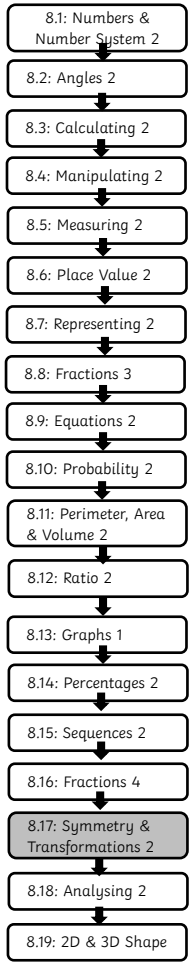

Unit 17 – Symmetry & Transformations 2	Sparx Codes
Draw and describe reflections of 2D shapes	M290
Draw and describe translations of 2D shapes using vectors	M139
Draw and describe rotations of 2D shapes	M910
Solve problems involving rotations, reflections, translations or combinations of them	M881
Know that a point is 'invariant' if it doesn't move after a transformation	

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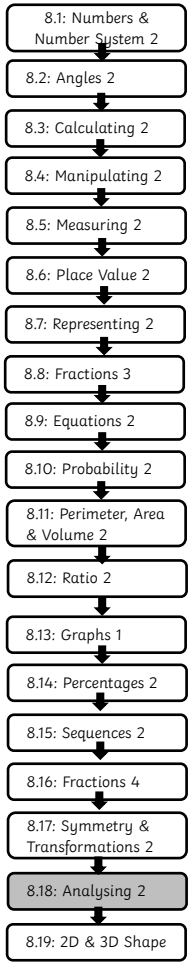

Unit 18 – Analysing 2	Sparx Codes
Understand that measures of central tendency (averages) offer a summary of a set of data	
Find the mode of a list of data	M841
Find the mode from a bar chart or pictogram	
Find the median of a list of n values, where n can be odd or even	M934
Calculate the mean of a list of data values	M940
Understand the range as a measure of spread (or consistency)	M328
Calculate the range from a set of data	
Calculate the range from a bar chart or pictogram	
Be familiar with the term outlier and the effect on range	
Compare sets of data, appreciating the limitations of different statistics	
Calculate the mode, range or mean from a discrete frequency table	M127

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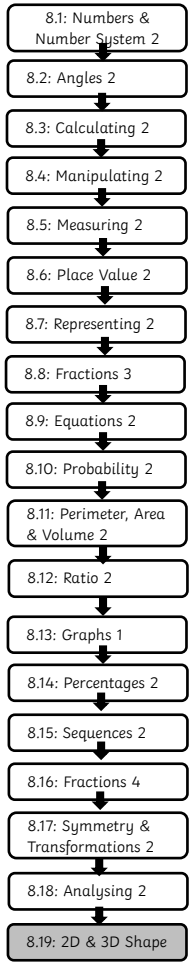

Unit 19 – 2D & 3D Shapes 2	Sparx Codes
Line symmetry	M523
Rotational symmetry	M523
Properties of scalene/isosceles/equilateral triangles	M276
Names and properties of different quadrilaterals	M276
Names of 2D shapes based on the number of sides	
Vocabulary for circle parts	M595
Know the names and properties of 3D shapes	M767
Planes of symmetry in 3D shapes (these cut a 3D shape into 2 equal and symmetrical halves)	M767
Number of faces, edges and vertices of a 3D shape	M767
Know the link between faces, edges and vertices in a 3D shape	M767
Nets of 3D shapes (identify shapes from nets or draw nets)	M518

Notes