

Personalised Learning Checklist (PLC): Year 8 Core/Extension

8.1: Numbers & Number System 2	Unit 1 – Numbers and the Number System	Sparx Codes
8.2: Angles 2	Find multiples and lowest common multiples of numbers	M227
8.3: Calculating 2	Know whether a number divides by 2, 3, 4, 5, 9 or 10	M823
8.4: Manipulating 2	Find factors and highest common factors of numbers	M698
8.5: Measuring 2	Recognise the prime numbers 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, ...	M322
8.6: Place Value 2	Find the prime factors of a number using a calculator or factor tree	M108
8.7: Representing 2	Use Venn diagrams with prime factors to calculate HCF and LCM	M365
8.8: Fractions 3	Recognise and use square numbers 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, ...	M135
8.9: Equations 2	Recognise and use cube numbers 1, 8, 27, 64, 125, ...	M135
8.10: Probability 2	Read, write and evaluate powers	M135
8.11: Perimeter, Area & Volume 2	Find square roots, cube roots and other roots (using $\sqrt{\quad}$ symbols)	M135
8.12: Ratio 2	Use a scientific calculator to find powers and roots	M135
8.13: Graphs 1	Recognise powers of 2, 3, 4 and 5	M135
8.14: Percentages 2	Know that a number to the power zero is 1	M135
8.15: Sequences 2		
8.16: Fractions 4		
8.17: Symmetry & Transformations 2		
8.18: Analysing 2		
8.19: 2D & 3D Shape		



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8.1: Numbers & Number System 2	Unit 2 – Angles	Sparx Codes
8.2: Angles 2	Recognise and use angle rule: vertically opposite angles are equal	M163
8.3: Calculating 2	Recognise and use angle rule: angles around a point add to 360°	M818
8.4: Manipulating 2	Recognise and use angle rule: angles at a point on a line add to 180°	M818
8.5: Measuring 2	Recognise pairs of alternate or corresponding angles	M606
8.6: Place Value 2	Work out missing angles in diagrams involving parallel lines	M606
8.7: Representing 2	Know that the angles in a triangle add to 180 degrees	M351
8.8: Fractions 3	Know that the angles in an equilateral triangle are 60 degrees	M351
8.9: Equations 2	Find missing angles in isosceles triangles	M351
8.10: Probability 2	Understand the proof of the angle sum of a triangle	M351
8.11: Perimeter, Area & Volume 2	Know that the angles in a quadrilateral add to 360° degrees	M679
8.12: Ratio 2	Work out the angle sum for any polygon using triangles	M653
8.13: Graphs 1		
8.14: Percentages 2		
8.15: Sequences 2		
8.16: Fractions 4		
8.17: Symmetry & Transformations 2		
8.18: Analysing 2		
8.19: 2D & 3D Shape		



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- 8.1: Numbers & Number System 2
- 8.2: Angles 2
- 8.3: Calculating 2
- 8.4: Manipulating 2
- 8.5: Measuring 2
- 8.6: Place Value 2
- 8.7: Representing 2
- 8.8: Fractions 3
- 8.9: Equations 2
- 8.10: Probability 2
- 8.11: Perimeter, Area & Volume 2
- 8.12: Ratio 2
- 8.13: Graphs 1
- 8.14: Percentages 2
- 8.15: Sequences 2
- 8.16: Fractions 4
- 8.17: Symmetry & Transformations 2
- 8.18: Analysing 2
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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
Multiply integers and decimals by a decimal	M803
Divide a whole number or decimal by a one or two digit number	M354 M873 M262
Divide integers by a decimal	M491
Add and subtract with negative numbers	M106
Multiply and divide with negative numbers	M288
Order of operations (BIDMAS)	M521
Use a scientific calculator	M757



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- 8.1: Numbers & Number System 2
- 8.2: Angles 2
- 8.3: Calculating 2
- 8.4: Manipulating 2
- 8.5: Measuring 2
- 8.6: Place Value 2
- 8.7: Representing 2
- 8.8: Fractions 3
- 8.9: Equations 2
- 8.10: Probability 2
- 8.11: Perimeter, Area & Volume 2
- 8.12: Ratio 2
- 8.13: Graphs 1
- 8.14: Percentages 2
- 8.15: Sequences 2
- 8.16: Fractions 4
- 8.17: Symmetry & Transformations 2
- 8.18: Analysing 2
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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 $a \times b$, $3y$ in place of $y + y + y$ and $3 \times y$, a^2 in place of $a \times a$, a^3 in place of $a \times a \times a$, $\frac{a}{b}$ in place of $a \div b$, use of brackets, a^2b in place of $a \times a \times b$)	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
Expand two brackets and simplify	M960
Factorise an expression with a single bracket using the HCF	M100
Substitute positive/negative numbers into expressions and formulae	M327 M208 M979
Use function machines to work out outputs and inputs	M175 M428
Rearrange a formula by changing the subject	M242 M983



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8.1: Numbers & Number System 2	Unit 5 – Measuring Understand and use labelling notation for angles Use a protractor to measure and draw angles Understand and use labelling notation for lengths Use a ruler to measure and draw line segments Use compasses to draw arcs and circles Use ruler and protractor to construct a triangle from a description Know that congruent shapes have equal sides and equal angles Know and use the rules for congruent triangles (SSS, SAS, ASA, RHS) Use and interpret scale factors, scale diagrams and maps Know that similar shapes are enlargements and angles are equal Understand enlargement Enlarge a shape	Sparx Codes
8.2: Angles 2		M780
8.3: Calculating 2		M331
8.4: Manipulating 2		M985
8.5: Measuring 2		M196
8.6: Place Value 2		M565
8.7: Representing 2		M124
8.8: Fractions 3		M124
8.9: Equations 2		M112
8.10: Probability 2		M178
8.11: Perimeter, Area & Volume 2		M178
8.12: Ratio 2		M178
8.13: Graphs 1		M178
8.14: Percentages 2		M178
8.15: Sequences 2		
8.16: Fractions 4		
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8.1: Numbers & Number System 2	Unit 6 – Place Value Use the signs $<$, \leq , $>$, \geq , $=$, \neq to compare numbers Use a compound inequality to compare numbers (e.g. $-1 < 0.5 < 4$) $<$ (less than) \leq (less than or equal to) $>$ greater than \geq greater than or equal to $=$ equal to \neq not equal to Read and write numbers, identify values of given digits Order a set of integers and decimals Round a number to the nearest 1000, 100, 10 or whole number Round a number to a specified number of decimal places Round numbers to a specified number of significant figures Estimate calculations by rounding to one significant figure Estimate and check if solutions are the correct size Decide if answers will be an overestimate or underestimate Be familiar with the concept of upper and lower bounds	Sparx Codes
8.2: Angles 2		M704
8.3: Calculating 2		M522
8.4: Manipulating 2		
8.5: Measuring 2		
8.6: Place Value 2		M553
8.7: Representing 2		M111
8.8: Fractions 3		M431
8.9: Equations 2		M994
8.10: Probability 2		M131
8.11: Perimeter, Area & Volume 2		M878
8.12: Ratio 2		M878
8.13: Graphs 1		M878
8.14: Percentages 2		M878
8.15: Sequences 2		M878
8.16: Fractions 4		M730
8.17: Symmetry & Transformations 2		
8.18: Analysing 2		
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8.1: Numbers & Number System 2	Unit 7 – Representing 2	Sparx Codes		
8.2: Angles 2			Construct and interpret frequency tables	M597
8.3: Calculating 2			Construct and interpret pictograms	M644
8.4: Manipulating 2			Construct and interpret bar charts	M460
8.5: Measuring 2			Construct and interpret comparative bar charts	M738
8.6: Place Value 2			Construct and interpret pie charts	M574 M165
8.7: Representing 2			Plot bivariate data on a scatter graph	M769 M596
8.8: Fractions 3			Understand positive and negative correlation	
8.9: Equations 2			Draw and use a line of best fit on a scatter graph	
8.10: Probability 2			Know interpolation is estimating within data values on a graph and this is generally reliable	
8.11: Perimeter, Area & Volume 2			Know extrapolation is estimating outside data values on a graph and this is unreliable	
8.12: Ratio 2				
8.13: Graphs 1				
8.14: Percentages 2				
8.15: Sequences 2				
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8.17: Symmetry & Transformations 2				
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8.1: Numbers & Number System 2	Unit 8 – Fractions 3	Sparx Codes		
8.2: Angles 2			Shade or interpret fraction diagrams	M158
8.3: Calculating 2			Construct fractions	M939
8.4: Manipulating 2			Convert between improper and mixed numbers	M601
8.5: Measuring 2			Equivalent fractions	M410
8.6: Place Value 2			Simplify fractions	M671
8.7: Representing 2			Order fractions using common denominators or by writing as decimals	M335
8.8: Fractions 3			Find a number between two fractions or integers	
8.9: Equations 2			Know fractions represent division & decide if a fraction is terminating or recurring	
8.10: Probability 2			Convert between fractions and decimals with or without a calculator	M958
8.11: Perimeter, Area & Volume 2			Convert fractions to recurring decimals	M922
8.12: Ratio 2			Convert recurring decimals to fractions on a calculator and use recurring decimal notation	M701
8.13: Graphs 1			Find a fraction of an amount with or without a calculator	M695 M684
8.14: Percentages 2			Find the original amount from a fraction	
8.15: Sequences 2			Write one quantity as a fraction of another	
8.16: Fractions 4			Understand reciprocals and find the reciprocal of an integer or fraction	
8.17: Symmetry & Transformations 2				
8.18: Analysing 2				
8.19: 2D & 3D Shape				



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8.1: Numbers & Number System 2	Unit 9 – Equations 2	Sparx Codes
8.2: Angles 2		
8.3: Calculating 2		M707 M509
8.4: Manipulating 2		
8.5: Measuring 2		
8.6: Place Value 2		
8.7: Representing 2		M554
8.8: Fractions 3		
8.9: Equations 2		M813 M957
8.10: Probability 2		
8.11: Perimeter, Area & Volume 2		
8.12: Ratio 2		
8.13: Graphs 1		
8.14: Percentages 2		
8.15: Sequences 2		
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8.1: Numbers & Number System 2	Unit 10 – Probability 2	Sparx Codes
8.2: Angles 2		
8.3: Calculating 2		M655
8.4: Manipulating 2		
8.5: Measuring 2		M941 M938
8.6: Place Value 2		
8.7: Representing 2		
8.8: Fractions 3		M718
8.9: Equations 2		
8.10: Probability 2		M755
8.11: Perimeter, Area & Volume 2		
8.12: Ratio 2	M206	
8.13: Graphs 1		
8.14: Percentages 2	M332	
8.15: Sequences 2		
8.16: Fractions 4		
8.17: Symmetry & Transformations 2		
8.18: Analysing 2		
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8.1: Numbers & Number System 2	Unit 11 – Perimeter, Area & Volume 2	Sparx Codes		
8.2: Angles 2				
8.3: Calculating 2			Find the perimeter of a shape or composite shape	M920 M635 M690
8.4: Manipulating 2			Area of a rectangle (Area = length x width)	M390
8.5: Measuring 2			Area of a triangle (Area = $\frac{1}{2}$ x base x height)	M610
8.6: Place Value 2			Area of a parallelogram (Area = base x height)	M291
8.7: Representing 2			Area of a trapezium (Area = $\frac{1}{2}(a + b)$ x height)	M705
8.8: Fractions 3			Name parts of a circle: radius, diameter, circumference, arc, sector, segment, chord, tangent	M595
8.9: Equations 2			Circumference of a circle (C = π x diameter)	M169
8.10: Probability 2			Area of a circle (Area = πr^2)	M231
8.11: Perimeter, Area & Volume 2			Area of compound shapes involving triangles and rectangles (or parts of circles)	M269 M996
8.12: Ratio 2			Volume of a cuboid (V = length x width x height)	M765
8.13: Graphs 1			Find the surface area of a cuboid	M884 M534
8.14: Percentages 2			Volume of a prism (V = area of cross-section x height), including cylinders (V = πr^2 x height)	M722 M697
8.15: Sequences 2			Use Pythagoras' Theorem to find lengths in a right-angled triangle ($c^2 = a^2 + b^2$ where c is the hypotenuse)	M677
8.16: Fractions 4				
8.17: Symmetry & Transformations 2				
8.18: Analysing 2				
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8.1: Numbers & Number System 2	Unit 12 – Ratio 2	Sparx Codes		
8.2: Angles 2				
8.3: Calculating 2			Use ratio notation to describe the comparison of quantities	M885
8.4: Manipulating 2			Simplify ratios, including those with units	M885
8.5: Measuring 2			Write a ratio in the form 1 : n or n : 1	M543
8.6: Place Value 2			Convert between ratios and fractions	M267
8.7: Representing 2			Be familiar with a ratio table and multipliers	
8.8: Fractions 3			Find missing values when given a ratio and the whole or one part	M801
8.9: Equations 2			Divide a quantity into parts using a given ratio	M525
8.10: Probability 2			Use ratios in real contexts such as map scales, conversions, recipes	
8.11: Perimeter, Area & Volume 2			Solve problems involving direct proportion	M478
8.12: Ratio 2				
8.13: Graphs 1				
8.14: Percentages 2				
8.15: Sequences 2				
8.16: Fractions 4				
8.17: Symmetry & Transformations 2				
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8.1: Numbers & Number System 2	Unit 13 – Graphs 1	Sparx Codes
8.2: Angles 2		
8.3: Calculating 2	Read and plot coordinates	M618
8.4: Manipulating 2	Plot graphs of linear functions written in the form $y = ax + b$	M932
8.5: Measuring 2	Read values for x or y from a graph	
8.6: Place Value 2	Know linear graphs have an intercept and rate of change (gradient)	
8.7: Representing 2	Draw the graph of quadratic functions of the form $y = ax^2 + bx + c$	GCSE U989
8.8: Fractions 3		
8.9: Equations 2		
8.10: Probability 2		
8.11: Perimeter, Area & Volume 2		
8.12: Ratio 2		
8.13: Graphs 1		
8.14: Percentages 2		
8.15: Sequences 2		
8.16: Fractions 4		
8.17: Symmetry & Transformations 2		
8.18: Analysing 2		
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8.1: Numbers & Number System 2	Unit 14 – Percentages 2	Sparx Codes
8.2: Angles 2		
8.3: Calculating 2	Know that percentage means parts per hundred	
8.4: Manipulating 2	Write a percentage as a fraction and decimal	M264
8.5: Measuring 2	Convert between fractions, decimals and percentages with or without a calculator	
8.6: Place Value 2	Know the calculator converter function keys	
8.7: Representing 2	Find a percentage of an amount without a calculator	M437
8.8: Fractions 3	Calculate the percentage of an amount with a calculator using a decimal or fraction multiplier	M905
8.9: Equations 2	Increase or decrease by a percentage without a calculator	M476
8.10: Probability 2	Use fraction/decimal multipliers to increase or decrease by a percentage	M533
8.11: Perimeter, Area & Volume 2	Work with percentages over 100%	
8.12: Ratio 2	Express one number/quantity as a percentage of another	M235
8.13: Graphs 1	Compare quantities using percentages	
8.14: Percentages 2	Find the percentage an amount has changed by (percentage change = $\frac{\text{actual} - \text{original}}{\text{original}} \times 100$ or percentage change = $\frac{\text{finish} - \text{start}}{\text{start}} \times 100$)	U278 (GCSE)
8.15: Sequences 2	Solve problems in context using a calculator, including percentage change problems	
8.16: Fractions 4		
8.17: Symmetry & Transformations 2		
8.18: Analysing 2		
8.19: 2D & 3D Shape		



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8.1: Numbers & Number System 2	Unit 15 – Sequences 2	Sparx Codes
8.2: Angles 2		
8.3: Calculating 2	Use a term-to-term rule to generate a sequence	M381
8.4: Manipulating 2	Be able to identify a term-to-term rule and continue the sequence	M241
8.5: Measuring 2	Understand that a sequence can be generated and described by a position-to-term rule	
8.6: Place Value 2	Substitute numbers into a position-to-term rule	M166
8.7: Representing 2	Understand the features of an arithmetic sequence and be able to recognise one (term-to-term rule involves addition or subtraction)	
8.8: Fractions 3	Find the nth term of an arithmetic progression	M991
8.9: Equations 2	Determine whether a number is a term of a given arithmetic sequence	
8.10: Probability 2	Understand the features of a geometric sequence and be able to recognise one (term-to-term rule involves multiplying or dividing)	
8.11: Perimeter, Area & Volume 2	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
8.12: Ratio 2	Appreciate there are other sequences such as quadratic and Fibonacci (eg 1, 1, 2, 3, 5, 8, 13, ...)	M418
8.13: Graphs 1		
8.14: Percentages 2		
8.15: Sequences 2		
8.16: Fractions 4		
8.17: Symmetry & Transformations 2		
8.18: Analysing 2		
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8.1: Numbers & Number System 2	Unit 16 – Fractions 4	Sparx Codes
8.2: Angles 2		
8.3: Calculating 2	Add and subtract fractions with different denominators	M835
8.4: Manipulating 2	Add and subtract mixed fractions	M931
8.5: Measuring 2	Multiply an integer by a fraction Multiply two fractions together	M157
8.6: Place Value 2	Multiply by a mixed fraction	M197
8.7: Representing 2	Divide an integer by a fraction Divide a fraction by an integer Divide a fraction by a fraction	M110
8.8: Fractions 3	Divide with mixed fractions	M265
8.9: Equations 2	Use a calculator to complete fraction or mixed fraction calculations	
8.10: Probability 2	Solve fraction problems in the context of shape/geometry	
8.11: Perimeter, Area & Volume 2		
8.12: Ratio 2		
8.13: Graphs 1		
8.14: Percentages 2		
8.15: Sequences 2		
8.16: Fractions 4		
8.17: Symmetry & Transformations 2		
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8.1: Numbers & Number System 2	Unit 17 – Symmetry & Transformations 2	Sparx Codes
8.2: Angles 2		
8.3: Calculating 2		
8.4: Manipulating 2		
8.5: Measuring 2		
8.6: Place Value 2		
8.7: Representing 2		
8.8: Fractions 3		
8.9: Equations 2		
8.10: Probability 2		
8.11: Perimeter, Area & Volume 2	Draw and describe reflections of 2D shapes	M290
8.12: Ratio 2	Draw and describe translations of 2D shapes using vectors	M139
8.13: Graphs 1	Draw and describe rotations of 2D shapes	M910
8.14: Percentages 2	Solve problems involving rotations, reflections, translations or combinations of them	M881
8.15: Sequences 2	Describe the resultant of multiple transformations using a single transformation	
8.16: Fractions 4	Know that a point is 'invariant' if it doesn't move after a transformation	
8.17: Symmetry & Transformations 2		
8.18: Analysing 2		
8.19: 2D & 3D Shape		



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8.1: Numbers & Number System 2	Unit 18 – Analysing 2	Sparx Codes
8.2: Angles 2		
8.3: Calculating 2		
8.4: Manipulating 2		
8.5: Measuring 2		
8.6: Place Value 2		
8.7: Representing 2		
8.8: Fractions 3		
8.9: Equations 2		
8.10: Probability 2		
8.11: Perimeter, Area & Volume 2	Understand that measures of central tendency (averages) offer a summary of a set of data	
8.12: Ratio 2	Find the mode of a list of data	M841
8.13: Graphs 1	Find the mode from a bar chart or pictogram	
8.14: Percentages 2	Find the median of a list of n values, where n can be odd or even	M934
8.15: Sequences 2	Calculate the mean of a list of data values	M940
8.16: Fractions 4	Understand the range as a measure of spread (or consistency)	M328
8.17: Symmetry & Transformations 2	Calculate the range from a set of data	
8.18: Analysing 2	Calculate the range from a bar chart or pictogram	
8.19: 2D & 3D Shape	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
	Calculate an estimated mean from a grouped frequency table	M287



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8.1: Numbers & Number System 2	Unit 19 – 2D & 3D Shapes 2 Line symmetry Rotational symmetry Properties of scalene/isosceles/equilateral triangles Names and properties of different quadrilaterals Names of 2D shapes based on the number of sides Vocabulary for circle parts Know the names and properties of 3D shapes Planes of symmetry in 3D shapes (these cut a 3D shape into 2 equal and symmetrical halves) Number of faces, edges and vertices of a 3D shape Know the link between faces, edges and vertices in a 3D shape Nets of 3D shapes (identify shapes from nets or draw nets)	Sparx Codes
8.2: Angles 2		M523
8.3: Calculating 2		M523
8.4: Manipulating 2		M276
8.5: Measuring 2		M276
8.6: Place Value 2		
8.7: Representing 2		
8.8: Fractions 3		M595
8.9: Equations 2		M767
8.10: Probability 2		M767
8.11: Perimeter, Area & Volume 2		M767
8.12: Ratio 2		M767
8.13: Graphs 1		M767
8.14: Percentages 2		M518
8.15: Sequences 2		
8.16: Fractions 4		
8.17: Symmetry & Transformations 2		
8.18: Analysing 2		
8.19: 2D & 3D Shape		



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