

Y10 Strand	PLC
Congruence, similarity and enlargement	1. Enlarge a shape by a positive integer scale factor
	2. Enlarge a shape by a fractional scale factor
	3. (H) Enlarge a shape by a negative scale factor
	4. Identify similar shapes
	5. Work out missing sides and angles in a pair of similar shapes
	6. Use parallel line rules to work out missing angles
	7. Establish a pair of triangles are similar
	8. (H) Explore areas of similar shapes (1)
	9. (H) Explore areas of similar shapes (2)
	10. (H) Explore volume of similar shapes
	11. (H) Solve mixed problems involving similar shapes
	12. Understand the difference between congruence and similarity
	13. Understand and use conditions for congruent triangles
	14. (H) Prove a pair of triangles are congruent
Trig	1. Explore ratio in similar right-angled triangles
	2. Work fluently with the hypotenuse, opposite and adjacent sides
	3. Use the tangent ratio to find missing side lengths
	4. Use the sine and cosine ratio to find missing side lengths
	5. Use sine, cosine and tangent to find missing side lengths
	6. Use sine, cosine and tangent to find missing angles
	7. Calculate sides in right-angled triangles using Pythagoras' Theorem
	8. Select appropriate method to solve right-angled triangle problems
	9. Work with key angles in right-angled triangles (1) and (2)
	10. (H) Use trigonometry in 3D shapes
	11. (H) Use the formula $\frac{1}{2}ab\sin C$ to find the area of a triangle
	12. (H) Understand and use the sine rule to find missing lengths
	13. (H) Understand and use the sine rule to find missing angles
	14. (H) Understand and use the cosine rule to find missing lengths
	15. (H) Understand and use the cosine rule to find missing angles

	16. (H) Choosing and using the sine and cosine rules (1) & (2)
Representing solutions to equations and inequalities	1. Understand the meaning of a solution
	2. Form and solve one-step and two-step equations
	3. Form and solve one-step and two-step inequalities
	4. Show solutions to inequalities on a number line
	5. Interpret representations on number lines as inequalities
	6. (H) Represent solutions to inequalities using set notation
	7. Draw straight line graphs
	8. Find solutions to equations using straight line graphs
	9. (H) Represent solutions to single inequalities on a graph
	10. (H) Represent solutions to multiple inequalities on a graph
	11. Form and solve equations with unknown on both sides
	12. Form and solve inequalities with unknown on both sides
	13. Form and solve more complex equations and inequalities
	14. (H) Solve quadratic equations by factorisation
	15. (H) Solve quadratic inequalities in one variable
Simultaneous equations	1. Understand that equations can have more than one solution.
	2. Determine whether a given (x,y) is a solution to a pair of linear simultaneous equations
	3. Solve a pair of linear simultaneous equations by substituting a known variable
	4. Solve a pair of linear simultaneous equations by substituting an expression (1) and (2)
	5. Solve a pair of linear simultaneous equations using graphs
	6. Solve a pair of linear simultaneous equations by subtracting equations
	7. Solve a pair of linear simultaneous equations by adding equations
	8. Use a given equation to derive related facts
	9. Solve a pair of linear simultaneous equations by adjusting one equation
	10. Solve a pair of linear simultaneous equations by adjusting both equations
	11. Form and solve a pair of linear simultaneous equations from given information
	12. (H) Determine whether a given (x,y) is a solution to both a linear and quadratic equation
	13. (H) Solve a pair of simultaneous equations (one linear, one quadratic) using graphs
	14. (H) Solve a pair of simultaneous equations (one linear, one quadratic) algebraically

	15. (H) Solve a pair of simultaneous equations involving a third unknown
Angles and Bearings	1. Use cardinal directions and related angles
	2. Draw and interpret scale diagrams
	3. Understand and represent bearings
	4. Measure and read bearings
	5. Make scale drawings using bearings
	6. Calculate bearings using angle rules
	7. Solve bearings problems using Pythagoras and trig
	8. (H) Solve bearings problems using the sine and cosine rules
Working with circles	1. Recognise and label parts of circles
	2. Calculate fractional parts of a circle
	3. Calculate the length of an arc
	4. Calculate the area of a sector
	5. (H) Circle Theorems: Angles at the centre and circumference/Angles in a semicircle
	6. (H) Circle Theorems: Angles in the same segment/Angles in a cyclic quadrilateral
	7. Understand and use the volume and surface area of a cylinder and cone
	8. Understand and use the volume and surface area of a sphere
	9. (H) Solve area and volume problems involving similar shapes
Vectors	1. Understand and represent vectors
	2. Use and read vector notation
	3. Draw and understand vectors multiplied by a scalar
	4. Draw and understand addition and subtraction of vectors
	5. (H) Explore vector journeys in shapes
	6. (H) Explore quadrilaterals using vectors
	7. (H) Understand parallel vectors
	8. (H) Explore collinear points using vectors
	9. (H) Use vectors to construct geometric arguments and proofs
	1. Compare quantities using ratio
	2. Link ratios and fractions
	3. Share in a ratio (given total or one part)

Ratio and fractions	4. Use ratios in fractions to make comparisons
	5. Link ratios and graphs
	6. Solve problems with currency conversion
	7. Link ratios and scales
	8. Use and interpret ratios in the form 1:n and n:1
	9. Solve 'best buy' problems
	10. Combine a set of ratios
	11. Link ratio and algebra
	12. (H) Ratio in area problems
	13. (H) Ratio in volume problems
	14. Mixed ratio problems
Percentages and interest	1. Convert and compare fractions, decimals and percentages
	2. Work out percentages of amounts (with and without a calculator)
	3. Increase and decrease by a given percentage
	4. Express one number as a percentage of another
	5. Calculate simple and compound interest
	6. Repeated percentage change
	7. Find the original value after percentage change
	8. Solve problems involving growth and decay
	9. (H) Understand iterative processes
	10. Solve problems involving percentages, ratios and fractions
Probability	1. Know how to add, subtract and multiply fractions
	2. Find probabilities using equally likely outcomes
	3. Use property that probabilities sum to 1
	4. Using experimental data to estimate probabilities
	5. Find probabilities from tables, venn diagrams and frequency trees
	6. Construct and interpret sample spaces for more than one event
	7. Calculate probability with independent events
	8. Use tree diagrams for independent events
	9. Use tree diagrams for dependent events

	10. (H) Construct and interpret conditional probabilities (tree diagrams)
	11. (H) Construct and interpret conditional probabilities (venn diagrams and two way tables)
Collecting, representing and interpreting data	1. Understand populations and samples
	2. (H) Construct a stratified sample
	3. Primary and secondary data
	4. Construct and interpret frequency tables and frequency polygons
	5. Construct and interpret two way tables
	6. Construct and interpret line and bar charts (including composite bar charts)
	7. Construct and interpret pie charts
	8. Criticise charts and graphs
	9. (H) Construct histograms
	10. (H) Interpret histograms
	11. Find and interpret averages from a list
	12. Find and interpret averages from a table
	13. Construct and interpret time series graphs
	14. Construct and interpret stem and leaf diagrams
	15. (H) Construct and interpret cumulative frequency diagrams
	16. (H) Use cumulative frequency diagrams to find measures
	17. (H) Construct and interpret box plots
	18. Compare distributions using charts and measures
	19. (H) Compare distributions using complex charts and measures
	20. Construct and interpret scatter graphs
	21. Draw and use a line of best fit
	22. Understand extrapolation
	1. Mental/written methods of integer/decimal addition/subtraction/multiplication/division
	2. The four rules of fraction arithmetic
	3. Exact answers
	4. (H) Rational and irrational numbers (convert recurring decimals here)
	5. (H) Understand and use surds
	6. (H) Calculate with surds

Non- calc methods with number	7. Rounding to decimal places and significant figures
	8. Estimating answers to calculations
	9. Understand and use limits of accuracy
	10. (H) Upper and lower bounds
	11. Use number sense
	12. Solve financial maths problems
	13. Break down and solve multi-step problems
Types of numbers and sequences	1. Understand the difference between factors and multiples
	2. Understand primes and express a number as a product of its prime factors
	3. Find the HCF and LCM of a set of numbers
	4. Describe and continue arithmetic and geometric sequences
	5. Explore other sequences
	6. (H) Describe and continue sequences involving surds
	7. Find the nth rule of a linear sequence
	8. (H) Find the rule for the nth term of a quadratic sequence
Indices and roots	1. Square and cube numbers
	2. Calculate higher powers and roots
	3. Powers of ten and standard form
	4. The addition and subtraction rules for indices
	5. Understand and use the power zero and negative indices
	6. Work with powers of powers
	7. (H) Understand and use fractional indices
	8. Calculate with numbers in standard form
Manipulating expressions	1. Simplify algebraic expressions
	2. Use identities
	3. (H) Add and subtract simple algebraic fractions
	4. (H) Add and subtract complex algebraic fractions
	5. (H) Multiply and divide simple algebraic fractions
	6. (H) Multiply and divide complex algebraic fractions
	7. Form and solve equations and inequalities with fractions

	8. (H) Solve equations with algebraic fractions
	9. Represent numbers algebraically
	10. Algebraic arguments and proof