

Mathematics Key Stage 3 Assessment Criteria

	Year 7	Year 8	Year 9
“Exceeding” Assemble Construct Create Develop Formulate	I can use rounding to give solutions to problems to an appropriate level of accuracy (1sf)	I can rearrange formulae to change the subject	
	I can use approximation through rounding (1sf) to estimate answers and identify rounding errors	I can construct and solve linear equations with integer coefficients and constant terms	
	I can use the prime factor decomposition of a number	I can recognise, sketch and produce graphs of quadratic functions of the form $y = ax^2 + bx + c$	
	I can use index notation for integer powers and use the index laws to simplify expressions of integer powers	I can solve problems involving lengths of circular arcs and areas of sectors	
	I can interpret and compare numbers in standard form with both positive and negative powers of 10	I can use trigonometric relationships in right-angled triangles to solve problems involving angles and sides	
	I can use efficient methods to add, subtract, multiply and divide integers and rational numbers	I can enumerate sets and combinations of sets systematically, using tree diagrams	
	I can solve problems involving percentage change including original and compound interest	I can calculate the probability of independent combined events, including using tree diagrams and other representations	
	I can solve problems involving direct and inverse proportion	I can interpret and construct tables charts and diagrams including tables for time series data	
	I can use compound units such as speed, unit pricing and density to solve problems	I can draw estimated lines of best fit when using scatter graphs and make predictions by interpolate and extrapolate apparent trends	
	I understand and can use the order of operations including brackets		
	I can recognise and use reciprocals and understand a reciprocal relationship		
	I can simplify and manipulate algebraic expressions by expanding and factorising		
	I can calculate and interpret gradients and intercepts of graphs of the form $y = mx + c$		
	I can use linear graphs to find approximate solutions of simultaneous equations		
	I can calculate the surface area and volume of prisms		
	I can solve problems involving surface areas and volumes of cylinders		
	I can use the standard ruler and compass constructions to construct angles, perpendiculars to given lines		
	I can find the locus of a point that moves according to a simple rule, where appropriate		
	I can use the basic congruence criteria for triangles (SSS, SAS, ASA)		
	I can use standard ruler and compass constructions to construct geometric figures		
	I can understand and apply Pythagoras' Theorem when solving problems involving right-angled triangles		
	I can compare distributions of ungrouped and grouped discrete data using mode, median and range		
	I can describe simple mathematical relationships between two variables using graphs		

“Securing” Compare Argue Experiment Judge Question Support Evaluate	I can simplify and manipulate algebraic expressions by collecting like terms and multiplying a single term over a bracket	I can use rounding to give solutions to problems to an appropriate degree of accuracy (including sf)	I can rearrange formulae to change the subject
	I can simplify and manipulate algebraic expressions by taking out common factors	I can use approximation through rounding (1sf) to estimate answers and calculate possible rounding errors	I can construct and solve linear equations with integer coefficients and unknowns on both sides
	I can construct and solve simple linear equations with integer coefficients and unknown on one side	I can use the prime factor decomposition of a number	I can recognise, sketch and produce graphs of quadratic functions of one variable
	I can plot the graphs of linear functions and recognise that equations of the form $y = mx + c$ correspond to straight-line graphs	I can use index notation for integer powers and use the index laws for multiplication and division of integer powers	I can solve problems involving lengths of circular arcs and areas of sectors
	I can find the nth term of a sequence	I can interpret and compare numbers in standards form with both positive and negative indices	I can use trigonometric relationships in right-angled triangles to solve problems involving right-angled triangles
	I can interpret plans and elevations of 3D shapes	I can use efficient methods to add, subtract, multiply and divide fractions interpreting division as a multiplication inverse	I can enumerate sets and combinations of sets systematically, using tree diagrams
	I can construct possibility spaces for combined experiments with equally likely outcomes and use these to calculate probabilities	I can solve problems involving percentage change including original value problems, and simple and compound interest	I can calculate the probability of independent combined events, including using tree diagrams and other representations
		I can solve problems involving direct and inverse proportion	I can interpret and construct tables charts and diagrams including tables and line graphs for time series data
		I can use compound units such as speed, unit pricing and density to solve problems	I can draw estimated lines of best fit when using scatter graphs and make predictions including interpolate and extrapolate apparent trends
		I understand and can use the order of operations including brackets, powers and roots	
		I can recognise and use reciprocals and understand a reciprocal as a multiplicative inverse	
		I can simplify and manipulate algebraic expressions by expanding products of two or more binomials	
		I can calculate and interpret gradients and intercepts of graphs of linear equations of the form $y = mx + c$	
		I can use linear graphs to find approximate solutions of simultaneous linear equations	
		I can calculate the surface area and volume of prisms	
		I can solve problems involving surface areas and volumes of cylinders	
		I can use the standard ruler and compass constructions to construct angle and line bisectors and perpendiculars to given lines	
		I can find the locus of a point that moves according to a simple rule, using compass constructions where appropriate	
		I can use the basic congruence criteria for triangles (SSS, SAS, ASA, RHS)	
		I can use standard ruler and compass constructions to construct triangles	
		I can understand and apply Pythagoras' Theorem when solving problems involving right-angled triangles	
		I can compare distributions of ungrouped and grouped discrete or continuous data using mean, mode, median and range	
		I can describe simple mathematical relationships between two variable and illustrate using scatter graphs	

“Achieving” Demonstrate Illustrate Interpret Sketch Solve Use	I can multiply and divide integers and decimals by 0.1, 0.01	I can simplify and manipulate algebraic expressions by collecting like terms and multiplying a single term over a bracket	I can use rounding to give solutions to problems to an appropriate degree of accuracy (including sf)
	I can round decimals to any given number of decimal places	I can simplify and manipulate algebraic expressions by taking out common factors	I can use approximation through rounding (1sf) to estimate answers and calculate possible rounding errors
	I can use multiples, factors, common factors, highest common factors and lower common factors	I can construct and solve simple linear equations with integer coefficients and unknown on one side	I can use the prime factor decomposition of a number
	I can add, subtract, multiply and divide positive and negative integers	I can plot the graphs of linear functions and recognise that equations of the form $y = mx + c$ correspond to straight-line graphs	I can use index notation for integer powers and use the index laws for multiplication and division of integer powers
	I can use integer powers and associated real roots and recognise powers of 2, 3, 4, 5	I can find the nth term of a sequence	I can interpret and compare numbers in standards form with both positive and negative indices
	I can convert terminating decimals to fractions and vice versa	I can interpret plans and elevations of 3D shapes	I can use efficient methods to add, subtract, multiply and divide fractions interpreting division as a multiplication inverse
	I can solve problems involving percentage increase and decrease	I can construct possibility spaces for combined experiments with equally likely outcomes and use these to calculate probabilities	I can solve problems involving percentage change including original value problems, and simple and compound interest
	I can use proportional reasoning to solve problems		I can solve problems involving direct and inverse proportion
	I can use the order of operations including brackets		I can use compound units such as speed, unit pricing and density to solve problems
	I can use formal methods to multiply and divide 3-digit by 2-digit whole numbers		I understand and can use the order of operations including brackets, powers and roots
	I can understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors		I can recognise and use reciprocals and understand a reciprocal as a multiplicative inverse
	I can generate terms of a sequence from either a term-to-term or position-to-term rule		I can simplify and manipulate algebraic expressions by collecting like terms and multiplying a single term over a bracket
	I can plot and interpret the graphs of simple linear functions arising from real-life situations, e.g. conversion graphs		I can simplify and manipulate algebraic expressions by taking out common factors
	I can use linear graphs to estimate values of y given values of x and vice versa		I can construct and solve simple linear equations with integer coefficients and unknown on one side
	I can calculate the surface area of cubes and cuboids		I can simplify and manipulate algebraic expressions by expanding products of two or more binomials
	I can calculate perimeters and areas of circles and composite shapes		I can rearrange formulae to change the subject
	I can interpret maps and scale drawings and use bearings		I can construct and solve linear equations with integer coefficients and unknowns on both sides
	I can understand and use alternate and corresponding angles on parallel line		I can plot the graphs of linear functions and recognise that equations of the form $y = mx + c$ correspond to straight-line graphs
	I can use Venn diagrams, grids and tables to enumerate sets and combinations of sets systematically		I can find the nth term of a sequence
	I understand that the sum of probabilities of all mutually exclusive outcomes is 1 and use this when solving problems		I can calculate and interpret gradients and intercepts of graphs of linear equations of the form $y = mx + c$
	I can compare distributions of ungrouped discrete data using mode, median and range		I can use linear graphs to find approximate solutions of simultaneous linear equations
	I can interpret, analyse and compare the distributions of ungrouped and grouped discrete and continuous data through appropriate graphical representations		I can recognise, sketch and produce graphs of quadratic functions of one variable
			I can calculate the surface area and volume of prisms
			I can solve problems involving surface areas and volumes of cylinders
			I can solve problems involving lengths of circular arcs and areas of sectors
			I can interpret plans and elevations of 3D shapes
			I can use the standard ruler and compass constructions to construct angle and line bisectors and perpendiculars to given lines

			I can find the locus of a point that moves according to a simple rule, using compass constructions where appropriate
			I can use the basic congruence criteria for triangles (SSS, SAS, ASA, RHS)
			I can use standard ruler and compass constructions to construct triangles
			I can understand and apply Pythagoras' Theorem when solving problems involving right-angled triangles
			I can use trigonometric relationships in right-angled triangles to solve problems involving right-angled triangles
			I can construct possibility spaces for combined experiments with equally likely outcomes and use these to calculate probabilities
			I can enumerate sets and combinations of sets systematically, using tree diagrams
			I can calculate the probability of independent combined events, including using tree diagrams and other representations
			I can compare distributions of ungrouped and grouped discrete or continuous data using mean, mode, median and range
			I can describe simple mathematical relationships between two variable and illustrate using scatter graphs
			I can interpret and construct tables charts and diagrams including tables and line graphs for time series data
			I can draw estimated lines of best fit when using scatter graphs and make predictions including interpolate and extrapolate apparent trends

“Developing” Describe Discuss Explain Identify Recognise Select	I can round decimals to the nearest whole number or one decimal place	I can order decimals	I can order decimals	
	I can understand and use place value and decimal notation	I can multiply and divide integers and decimals by 0.1, 0.01	I can multiply and divide integers and decimals by 0.1, 0.01	
	I can multiply and divide integers and decimals by 10, 100 and 1000	I can round decimals to any given number of decimal places	I can round decimals to any given number of decimal places	
	I can order decimals	I can use multiples, factors, common factors, highest common factors	I can use multiples, factors, common factors, highest common factors and lowest common multiples	
	I can order, add and subtract negative numbers in context	I can add, subtract, multiply and divide positive and negative integers	I can add, subtract, multiply and divide positive and negative integers	
	I can recognise and describe multiples, factors, primes and square numbers	I can use integer powers and associated real roots and recognise powers of 2	I can use integer powers and associated real roots and recognise powers of 2	
	I can express a smaller whole number as a fraction of a larger one (e.g. 1/2, 3/4)	I can calculate fractions or percentages of a quantity	I can calculate fractions or percentages of a quantity	
	I can simplify fractions by cancelling all common factors	I can add and subtract fractions by writing them with a common denominator	I can add and subtract fractions by writing them with a common denominator	
	I can recognise proportions of a whole number using percentages	I can use ratio notation, including reduction to its simplest forms	I can use ratio notation, including reduction to its simplest forms	
	I can recognise simple equivalence between fractions, decimals and percentages (e.g. 1/2 = 0.5 = 50%)	I can divide a given quantity into a given ratio	I can divide a given quantity into a given ratio	
	I can calculate fractions or percentages of a quantity	I can convert terminating decimals to fractions and vice versa	I can convert terminating decimals to fractions and vice versa	
	I can add and subtract fractions by writing them with a common denominator	I can solve problems involving percentage increase and decrease	I can solve problems involving percentage increase and decrease	
	I can use ratio notation, including reduction to its simplest forms	I can use proportional reasoning to solve problems	I can use proportional reasoning to solve problems	
	I can divide a given quantity into a given ratio	I understand and can use the rules of arithmetic and inverse operations in the context of integers and decimals	I understand and can use the rules of arithmetic and inverse operations in the context of integers and decimals	
	I can recall number facts including complements to 100 and multiplication and division facts	I can use the order of operations including brackets	I can use the order of operations including brackets	
	I can interpret calculator displays within context	I can use formal methods to multiply and divide 3-digit by 2-digit whole numbers	I can use formal methods to multiply and divide 3-digit by 2-digit whole numbers	
	I can understand and use inverse operations in the context of positive and negative numbers	I can use and interpret algebraic notation (e.g. ab in place of $a \times b$, $3y$ in place of $3 \times y$)	I can use and interpret algebraic notation (e.g. ab in place of $a \times b$, $3y$ in place of $3 \times y$)	
	I can add and subtract decimals to two places, and multiply a simple decimal by 10, 100 and 1000	I can substitute numerical values into formulae and expressions	I can substitute numerical values into formulae and expressions	
	I understand and can use the rules of arithmetic and inverse operations in the context of integers and decimals	I can understand and use the concepts and vocabulary of expressions, equations and formulae	I can understand and use the concepts and vocabulary of expressions, equations and formulae	
	I can begin to use simple formulae expressed in words	I can express simple functions in words and symbols and represent them in number lines	I can express simple functions in words and symbols and represent them in number lines	
	I can use and interpret algebraic notation (e.g. ab in place of $a \times b$, $3y$ in place of $3 \times y$)	I can generate sequences from patterns or practical contexts and describe the simple case	I can generate sequences from patterns or practical contexts and describe the simple case	
	I can substitute numerical values into formulae and expressions	I can generate terms of a sequence from either a term-to-term or a position-to-position rule	I can generate terms of a sequence from either a term-to-term or a position-to-position rule	
	I can use and interpret coordinates in all four quadrants	I can plot and interpret the graphs of simple linear functions arising from real-world contexts	I can plot and interpret the graphs of simple linear functions arising from real-world contexts	
	I can recognise and describe number patterns for adding and subtracting	I can use linear graphs to estimate values of y given values of x and vice versa	I can use linear graphs to estimate values of y given values of x and vice versa	
	I can describe sequences and generate sequences given a simple rule	I know and can use the formula for the circumference and area of a circle	I know and can use the formula for the circumference and area of a circle	
	I can express simple functions in words and symbols and represent them in number lines	I can derive and use the formulae for the area of a triangle, parallelogram and rectangle	I can derive and use the formulae for the area of a triangle, parallelogram and rectangle	
	I can generate sequences from patterns or practical contexts and describe the simple case	I can calculate the surface area of cubes and cuboids	I can calculate the surface area of cubes and cuboids	
	I can measure and draw acute and obtuse angles	I can calculate perimeters and areas of circles and composite shapes	I can calculate perimeters and areas of circles and composite shapes	
	I can choose and use units of measurement to measure, estimate and calculate	I can interpret maps and scale drawings and use bearings	I can interpret maps and scale drawings and use bearings	
	I can convert one metric unit to another	I can use correctly the vocabulary, notation and labelling conventions for lines and angles	I can use correctly the vocabulary, notation and labelling conventions for lines and angles	
	I can read and interpret scales on a range of measuring instruments	I can identify parallel and perpendicular lines and know the sum of angles at a point, on a straight line and in a triangle	I can identify parallel and perpendicular lines and know the sum of angles at a point, on a straight line and in a triangle	
	I can convert between related standard units (e.g. time, length, area, mass, volume)	I can derive and use the sum of angles in a triangle including to deduce angles	I can derive and use the sum of angles in a triangle including to deduce angles	
	I can measure and draw reflex angles to the nearest degree	I can understand and use alternate and corresponding angles on a parallel line	I can understand and use alternate and corresponding angles on a parallel line	
	I can find the perimeter and area of rectangles and shapes made from rectangles	I can identify all the possible mutually exclusive outcomes of a single event	I can identify all the possible mutually exclusive outcomes of a single event	
	I can use the formula for the volume of a cuboid	I can interpret the results of an experiment using the language of probability	I can interpret the results of an experiment using the language of probability	
	I know and can use the formula for the circumference and area of a circle	I can use Venn diagrams, grids and tables to enumerate sets and combinations systematically	I can use Venn diagrams, grids and tables to enumerate sets and combinations systematically	
	I can derive and use the formulae for the area of a triangle, parallelogram and rectangle	I understand that the sum of probabilities of all mutually exclusive outcomes is 1 when solving problems	I understand that the sum of probabilities of all mutually exclusive outcomes is 1 when solving problems	

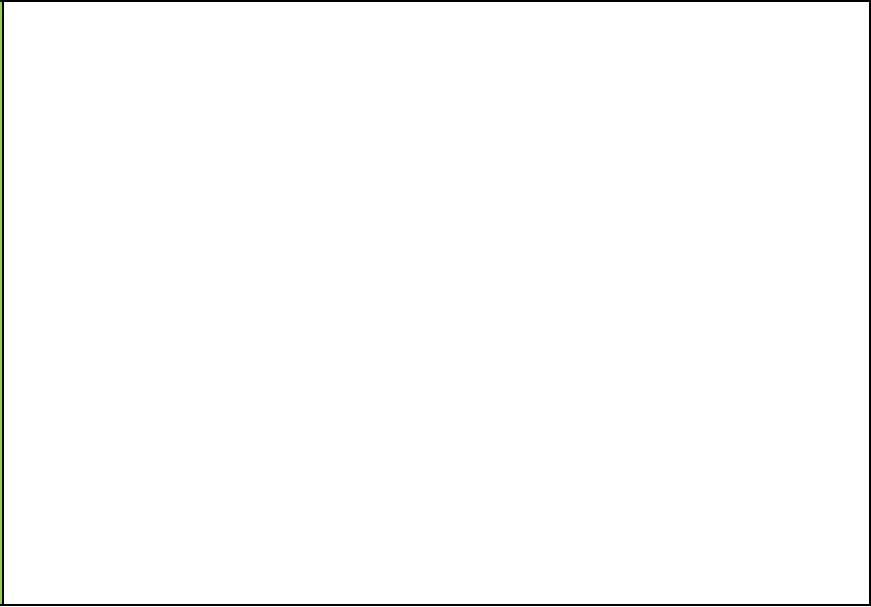
	I can use correctly the vocabulary, notation and labelling conventions	I can interpret and construct graphs and diagrams to represent ungrouped data using bar graphs, pie charts and frequency tables	I can interpret and construct graphs and diagrams to represent ungrouped data using bar graphs, pie charts and frequency tables	
	I can identify parallel and perpendicular lines and know the sum of angles in a triangle	I can compare distributions of ungrouped discrete data using mean, mode and range	I can compare distributions of ungrouped discrete data using mean, mode and range	
	I can derive and use the sum of angles in a triangle including to find missing angles	I can interpret, analyse and compare the distributions of ungrouped and grouped continuous data through appropriate graphical representations	I can interpret, analyse and compare the distributions of ungrouped and grouped continuous data through appropriate graphical representations	
	I can understand and use the probability scale from 0 to 1			
	I can find and justify probabilities based on equally likely outcomes			
	I can identify all the possible mutually exclusive outcomes of a situation			
	I can interpret the results of an experiment using the language of probability and state that random processes are unpredictable			
	I can construct, interpret and solve problems involving simple linear graphs			
	I can find the mode, median and range for small sets of discrete data			
	I can calculate and interpret the mean of a set of discrete data			
	I can interpret and construct graphs and diagrams to represent ungrouped data using bar graphs, pie charts and frequency tables			

“Emerging”
Define
List
Memorise
Recall
Repeat
Reproduce

I can read, write and order whole numbers
I can round whole numbers to the nearest 10, 100 and 1000
I can recognise negative numbers in context
I can understand negative numbers as positions on a number line
I can recognise proportions of a whole number using fractions and decimal equivalents
I can begin to use decimal notation in contexts such as money
I understand and can use a range of mental methods of computation for all numbers
I can use formal written methods to add and subtract 3-digit numbers
I can use formal written methods to multiply and divide numbers by a single digit
I can use and interpret coordinates in the first quadrant
I can express simple functions in words
I can distinguish between and estimate the size of acute, obtuse and reflex angles
I can find perimeters of simple shapes and areas by counting squares and rectangles
I can recognise and identify all the symmetries of 2D shapes
I can transform 2D shapes by reflecting in given mirror lines, rotating about a point and translating
I can draw 2D shapes using given dimensions and angles
I can recognise, describe and build simple 3D shapes, including making nets
I can compare and classify geometric shapes based on their properties
I can use the terms *likely*, *equally likely*, *fair*, *unfair*, *certain* when describing chance
I can interpret and present discrete data using appropriate tables and graphs
I can complete, read and interpret information in tables and time

I can read, write and order whole numbers
I can round whole numbers to the nearest 10, 100 and 1000
I can round decimals to the nearest whole number or one decimal place
I can understand and use place value and decimal notation
I can multiply and divide integers and decimals by 10, 100 and 1000 and explain the process
I can recognise negative numbers in context
I can understand negative numbers as positions on a number line
I can order, add and subtract negative numbers in context
I can recognise and describe multiples, factors, primes and square numbers
I can recognise proportions of a whole number using fractions and decimal equivalents
I can begin to use decimal notation in contexts such as money
I can express a smaller whole number as a fraction of a larger one
I can simplify fractions by cancelling all common factors
I can recognise proportions of a whole number using percentages
I can recognise simple equivalence between fractions, decimals and percentages (e.g. 1/2, 2/4, 0.5, 50%)
I understand and can use a range of mental methods of computation for all numbers
I can use formal written methods to add and subtract 3-digit numbers
I can use formal written methods to multiply and divide numbers by a single digit
I can recall number facts including complements to 100 and multiplication facts and associated division facts
I can interpret calculator displays within context
I can understand and use inverse operations in the context of positive integers
I can add and subtract decimals to two places, and multiply a simple decimal by 10, 100 and 1000
I can begin to use simple formulae expressed in words
I can use and interpret coordinates in the first quadrant
I can express simple functions in words
I can use and interpret coordinates in all four quadrants
I can recognise and describe number patterns for adding and subtracting
I can describe sequences and generate sequences given a simple rule
I can distinguish between and estimate the size of acute, obtuse and reflex angles
I can find perimeters of simple shapes and areas by counting squares and rectangles
I can measure and draw acute and obtuse angles
I can choose and use units of measurement to measure, estimate, calculate and convert in everyday contexts
I can convert one metric unit to another
I can read and interpret scales on a range of measuring instruments
I can convert between related standard units (e.g. time, length, area, volume)
I can measure and draw reflex angles to the nearest degree
I can find the perimeter and area of rectangles and shapes made from rectangles
I can use the formula for the volume of a cuboid
I can recognise and identify all the symmetries of 2D shapes
I can transform 2D shapes by reflecting in given mirror lines, rotating about a point and translating
I can draw 2D shapes using given dimensions and angles
I can recognise, describe and build simple 3D shapes, including making nets

I can read, write and order whole numbers
I can round whole numbers to the nearest 10, 100 and 1000
I can round decimals to the nearest whole number or one decimal place
I can understand and use place value and decimal notation
I can multiply and divide integers and decimals by 10, 100 and 1000 and explain the process
I can recognise negative numbers in context
I can understand negative numbers as positions on a number line
I can order, add and subtract negative numbers in context
I can recognise and describe multiples, factors, primes and square numbers
I can recognise proportions of a whole number using fractions and decimal equivalents
I can begin to use decimal notation in contexts such as money
I can express a smaller whole number as a fraction of a larger one
I can simplify fractions by cancelling all common factors
I can recognise proportions of a whole number using percentages
I can recognise simple equivalence between fractions, decimals and percentages (e.g. 1/2, 2/4, 0.5, 50%)
I understand and can use a range of mental methods of computation for all numbers
I can use formal written methods to add and subtract 3-digit numbers
I can use formal written methods to multiply and divide numbers by a single digit
I can recall number facts including complements to 100 and multiplication facts and associated division facts
I can interpret calculator displays within context
I can understand and use inverse operations in the context of positive integers
I can add and subtract decimals to two places, and multiply a simple decimal by 10, 100 and 1000
I can begin to use simple formulae expressed in words
I can use and interpret coordinates in the first quadrant
I can express simple functions in words
I can use and interpret coordinates in all four quadrants
I can recognise and describe number patterns for adding and subtracting sequences
I can describe sequences and generate sequences given a simple rule
I can distinguish between and estimate the size of acute, obtuse and reflex angles
I can find perimeters of simple shapes and areas by counting squares and rectangles
I can measure and draw acute and obtuse angles
I can choose and use units of measurement to measure, estimate, calculate and convert in everyday contexts
I can convert one metric unit to another
I can read and interpret scales on a range of measuring instruments
I can convert between related standard units (e.g. time, length, area, volume)
I can measure and draw reflex angles to the nearest degree
I can find the perimeter and area of rectangles and shapes made from rectangles
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I can transform 2D shapes by reflecting in given mirror lines, rotating about a point and translating
I can draw 2D shapes using given dimensions and angles
I can recognise, describe and build simple 3D shapes, including making nets



I can compare and classify geometric shapes based on their properties
I can find unknown angles in any triangles, quadrilaterals and regular polygons
I can identify, describe and construct similar shapes by enlargement, with and without grids
I can use the terms <i>likely, equally likely, fair, unfair, certain</i> when describing chance
I can understand and use the probability scale from 0 to 1
I can find and justify probabilities based on equally likely outcomes in simple random experiments
I can interpret and present discrete data using appropriate tables or graphs
I can complete, read and interpret information in tables and timetables
I can construct, interpret and solve problems involving simple line graphs and bar charts
I can find the mode, median and range for small sets of discrete data and more continuous data
I can calculate and interpret the mean of a set of discrete data

I can compare and classify geometric shapes based on their properties and similarities
I can find unknown angles in any triangles, quadrilaterals and regular polygons
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I can use the terms <i>likely, equally likely, fair, unfair, certain</i> when describing chance
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