Curriculum Map Year 7 2021

	Tiers 1-2	Tier 3	Tier 4	Tier 5
Autumn 1 **Problem solving task** **Assessment**				
Place value	Count on and back in steps of constant size Recognise odd and even numbers Order positive integers and decimals to 1 decimal place Round whole numbers to the nearest whole, 10, 100, 1000	Order positive and negative integers Order positive decimals to 2 decimal places Round decimals to the nearest whole number or 1 decimal place	Order positive and negative decimals (including numbers with a differing number of decimal places) Round decimals to 2 decimal places	Order any set of numbers (including those written in standard form) Round decimals to an appropriate degree of accuracy (including significant figures)
Addition and subtraction	Use mental methods to add or subtract multiples of 10 or 100 Know and use addition and subtraction facts to 20 Use written methods to add and subtract integers and decimals to 2 dp	Add and subtract negative numbers Add and subtract integers and decimals of any size (with the same number of decimal places)	Add and subtract integers and decimals of any size (including negatives and numbers with a differing number of decimal places)	Add and subtract numbers written in standard form Use positive and negative numbers of any size, the laws of arithmetic and inverse operations
	Find the perimeter of rectangles	Calculate perimeters of shapes made of rectangles	Calculate and use the perimeter of any shape	Solve problems involving perimeter (considering upper and lower bounds)
Angle sums	Draw and measure angles (acute, obtuse) Distinguish between and estimate the size of acute, obtuse and reflex angles Begin to find the angles in a triangle	Draw and measure any angle (including reflex) Know the angles at a point, on a straight line and in a triangle Recognise vertically opposite angles	Know and use angles in a quadrilateral Identify alternate and corresponding angles Solve geometrical problems using alternate and corresponding angles justifying answers	Know and use properties of angles, parallel and intersecting lines, triangles and other polygons Interior and exterior angle sums Solve geometric problems using step-by-step reasoning
Autumn 2 **Problem solving task** **Assessment**				
Multiplication and division	Know multiplication facts for 2 - 10 times tables Multiply and divide integers and decimals by 10, 100, 1000 Use written methods to multiply 2 or 3 digit numbers by a single digit number	Multiply and divide decimals with one or two decimal places by an integer Multiply and divide negative numbers	Understand the effect of multiplying and dividing numbers by values between 0 and 1 Know and apply BIDMAS (including indices)	Use positive and negative numbers of any size, the laws of arithmetic and inverse operations including multiplying and dividing decimals by decimals) Use index notation for integer powers; know and use the index laws for multiplication and division of positive integer powers
	Use multiplication facts to find simple divisions (explore inverse operations)	Recognise square numbers and corresponding square roots	Use squares, positive and negative square roots, cubes and cube roots, and index notation for small positive integer powers	Estimate square roots and cube roots
Multiples and factors	Recognise and use multiples, factors, primes (under 100)	Recognise and use HCF and LCM (in simple cases) Use Venn diagrams to depict common multiples and factors	Find the prime factorisation of a number	Use the prime factorisation of a number
Applications	Know and use the formula for the area of a rectangle Calculate the mode, range, mean and median (single digit integers) Convert between metric units using decimals to 2dp	Calculate areas of shapes made from rectangles Calculate the mode, range, mean and median (decimals) Convert one metric unit to another	Derive and use formula for the area of a triangle, parallelogram and trapezium Calculate areas of compound shapes Know rough metric equivalents of imperial measures	Convert between length and area measures Solve problems involving area of compound shapes Find the circumference and area of circles (simple) Exchange rates
Spring 1 **Problem solving task**				

http://www.areamaze.com/m/a15

Assessment				
Fractions	Identify fractions of shapes			
	Express a smaller whole number as a fraction of a larger one	Express a smaller number as a percentage or fraction of a larger one		
	Find unit fractions of simple quantities	Multiply fractions by an integer	Multiply and divide fractions	Multiply and divide simple algebraic fractions
	Find equivalent fractions	Use percentages to compare simple proportions	Order fractions by writing as equivalents or converting into decimals	Simplify or transform algebraic expressions by taking out single-term common factors
	Add and subtract simple fractions with the same denominator	Add and subtract simple fractions	Add and subtract fractions	Add and subtract simple algebraic fractions
	Find simple equivalent FDP	Convert between fractions, decimals and percentages	Use division to convert a fraction to a decimal	Convert recurring decimals into fractions
	Calculate simple fractions and percentages of amounts	Calculate fractions and percentages of quantities	Increase and decrease and amount by a given percentage	Increase and decrease an amount by a given percentage or fraction
				Use multipliers for percentage change
Applications	Interpret simple pie charts (half/quarter)	Interpret simple pie charts	Read and draw simple pie charts	Solve problems with pie charts
Spring 2				
Problem solving task				
Assessment				
Ratio and proportion	Understand and use £.p notation	Use direct proportion in simple contexts	Use the unitary method to solve problems involving ratio and direct proportion	Use proportional reasoning to solve problems, choosing the correct numbers to take as 100%, or as a whole
	Convert £ to p and vice versa	Use ratio notation		Compare two ratios
	Carry out mental and written calculations involving money	Simplify ratios (including money and time)	Simplify ratios, including those in different units	Simplify ratios, recognising links with fraction notation
	Read the time to the minute on analogue and digital clocks	Divide a quantity into two parts in a simple ratio	Divide a quantity into two or more parts given a ratio	Calculate ratios in a range of contexts
	Use 12 hour and 24 hour clock notation	Understand the link between ratio and proportion	Apply understanding of link between ratio and proportion	Recognise when fractions or percentages are needing to compare proportions
	Convert between minutes and hours	Increase and decrease and amount by a given percentage		Extend mental methods of calculation with fractions, percentages and ratios
Shape	Know and use properties of 2D shapes	Use 2D shape in ratio problems	Use 2D and 3D shape in ratio problems	Use 2D and 3D shape in ratio problems
Summer 1				
Problem solving task				
Assessment				
Sequences	Recognise and extend sequences of consecutive numbers, odd numbers and even numbers	Generate terms of a simple sequence, given a rule	Generate terms of a linear sequence using term-to-term and position-to-term rules	Generate terms of a linear sequence using term-to-term and position-to-term rules
	Describe integer sequences	Describe the general term of a simple sequence	Use linear expressions to describe the *n* th term of a simple arithmetic sequence	Use linear expressions to desribe the nth term of as simple arithmetic sequence
				Explore quadratic sequences
	Generate terms of a simple sequence given a rule	Generate sequences from patterns or practical contexts	Relate linear sequences to linear functions	Represent linear sequences graphically
		Use iterative processes	Explore iterative sequences	Descibe a rule for iterative sequences
Algebraic expressions	Use letter symbols to represent unknown numbers or variables	Use letter symbols to represent unknown numbers or variables	Use index notation for small positive integer powers	
	Simplify linear algebraic expressions by collecting like terms	Simplify linear algebraic expressions by collecting like terms (numbers and letters)	Simplify or transform linear expressions by collecting like terms	Simplify or transform algebraic expressions by taking out single-term common factors
	Understand and use inverse operations	Understand that algebraic operations follow the rules of arithmetic	Understand that algebraic operations, including the use of brackets, follow the rules of arithmetic	Add simple algebraic fractions
		Multiply a single term over a bracket (positive integer coefficients)	Multiply a single term over a bracket (positive and negative integers)	Expand two brackets to form a quadratic expression
				Work with general iterative processes e.g. use systematic trial and improvement methods to find approximate solutions of equations such as $x^3 + x = 20$.
Summer 2				
Problem solving task				

http://www.areamaze.com/m/a15

Assessment				
Algebraic manipulation	Use simple formulae expressed in words, then symbols	Use simple formulae from mathematics and other subjects	Use formulae from mathematics and other subjects	Change the subject of simple formulae
	Substitute positive integers into simple linear expressions and formulae	Substitute positive integers into simple linear expressions and formulae	Substitute positive integers into expressions involving small powers	Substitute numbers into expressions and formulae
		Construct and solve simple linear equations, e.g. 4a=12	Derive simple formulae and in simple cases change subject	Construct and solve linear equations with integer coefficients (unknown on one or both sides, without and with brackets)
Linear graphs	Construct, on paper and using ICT, graphs and diagrams to represent data including, bar graphs and simple pie charts	Construct and interpret graphs and diagrams to represent data, including bar line graphs and frequency diagrams for grouped discrete data	Express simple functions algebraically and represent them in mappings or on a spreadsheet	Represent and solve problems involving constant or average rates of change graphically
	Use coordinates in the first quadrant	Use coordinates in all four quadrants and identify coordinates of points determined by geometric information	Generate points in all four quadrants and plot graphs of linear functions (y given explicitly in terms of x), on paper and using ICT	Generate points and plot graphs of linear functions given explicitly (y given in terms of x) and implicitly (y given implicitly in terms of x, e.g. $ay + bx = 0$, $y + bx + c = 0$)
	Plot a simple graph (e.g. for a multiplication table).	Represent simple functions using words, symbols and mappings	Recognise that equations of the form $y = mx + c$ correspond to straight-line graphs	Find the gradient of lines given by equations of the form $y = mx + c$
		Plot graphs of simple linear functions (y given explicitly in terms of x).	Discuss and interpret graphs arising from real situations.	Understand and use measures of compound measures speed, density and pressure and solve problems involving constant or average rates of change.