Curriculum Long Term Planning Overview

Key Stage 3

Subject Area: Maths

Vear	Study	Autumn Term 1	Autumn Term	Spring Term 1	Spring Term 2	Summer Term	Summer Term
i cai	Modules	Addition refined 2	2	Spring Term I	Spring Term 2	1	2
Year 7 Set 3 and UP	Study Modules Study Modules	 Autumn Term 1 Number 1 and Calculating Recall prime numbers up to 50 Know how to test if a number up to 150 is prime Know the meaning of 'highest common factor' and 'lowest common multiple' Recognise when a problem involves using the highest common factor of two numbers Recognise when a problem involves using the lowest common multiple of two numbers Recognise when a problem involves using the lowest common multiple of two numbers Understand the use of notation for powers Know the meaning of the square root symbol (v) Use a scientific calculator to calculate powers and roots Make the connection between squares and square roots (and cubes and cube roots) Use inequality symbols to compare numbers and decimals Make correct use of the symbols = and ≠ 	Autumn Term 2 Algebraic Manipulation 1 • Know the meaning of expression, term, formula, equation, function • Know basic algebraic notation (the rules of algebra) • Use letters to represent variables • Identify like terms in an expression • Simplify an expression by collecting like terms • Know how to multiply a (positive) single term over a bracket (the distributive law) • Given a function, establish outputs from given inputs • Given a function, establish inputs from given outputs • Use a mapping diagram (function machine) to represent a function • Use the order of operations correctly in algebraic situations	 Spring Term 1 Exploring FDP and Calculating with FDP Identify a common denominator that can be used to order a set of fractions Order fractions where the denominators are not multiples of each other Write one quantity as a fraction of another where the fraction is less than 1 Write one quantity as a fraction of another where the fraction is greater than 1 Write one quantity as a fraction of another where the fraction is greater than 1 Write a fraction in its lowest terms by cancelling common factors Find equivalent fractions Identify when a fraction can be scaled to tenths or hundredths Convert between mixed numbers and top-heavy fractions Apply addition and subtraction to proper fractions 	 Spring Term 2 Proportional Reasoning Convert fluently between metric units of length Convert fluently between metric units of mass Convert fluently between metric units of volume / capacity Convert fluently between units of time Convert fluently between units of time Convert fluently between units of money Solve practical problems that involve converting between units State conclusions clearly using the units correctly Describe a comparison of measurements or objects using ratio notation a:b Use ratio notation to describe a comparison of more than two measurements or 	Summer Term 1 Algebraic Manipulation 2, Formulae and Solving Equations I • now how to write products algebraically • Simplify an expression involving terms with combinations of variables (e.g. 3a ² b + 4ab ² + 2a ² - a ² b) • Recognise a simple formula written in words • Interpret the information given in a written formula • Substitute positive numbers into formulae • Interpret the information that results from substituting into a formula • Create a one-step formula from given information • Create a two-step formula from given information • Use symbols to represent variables in a formula • Building equations	 Summer Term 2 Investigating angles Use a ruler and protractor to measure angles Use a ruler and protractor to draw angles Use a ruler and protractor to draw angles Identify fluently angles at a point, angles at a point, angles at a point, angles at a point on a line and vertically opposite angles Identify known angle facts in more complex geometrical diagrams Use knowledge of angles to calculate missing angles in geometrical diagrams Know that angles in a triangles total 180° Find missing angles in triangles Find missing angles in a quadrilateral total 360° Find missing angles in a quadrilaterals Explain reasoning using vocabulary of angles Use knowledge of all angle facts to calculate missing angles in a guadrilaterals
		 and cube roots) Use inequality symbols to compare numbers and decimals Make correct use of the symbols = and ≠ Place a set of negative numbers in order Place a set of mixed positive and negative numbers in order Add or subtract from a negative number 	 Use an expression to represent a function Use the order of operations correctly in algebraic situations 	 Convert between mixed numbers and top-heavy fractions Apply addition and subtraction to proper fractions, improper fractions and mixed numbers Multiply proper, improper fractions and mixed numbers Divide a proper fraction by a proper fraction and apply 	 objects using ratio notation a:b Use ratio notation to describe a comparison of more than two measurements or objects Convert between different units of measurement State a ratio of measurements in the same units 	 information Use symbols to represent variables in a formula Building equations Choose the required inverse operation when solving an equation Identify the correct order of undoing the operations in an equation 	 quadrilaterals Explain reasoning using vocabulary of angles Use knowledge of all angle facts to calculate missing angles in geometric diagrams linking to algebra Constructions 1 Know the meaning of faces, edges and vertices

Assessment	 Add (or subtract) a negative number to (from) a positive number Add (or subtract) a negative number to (from) a negative number Multiply positive numbers by a negative number Multiply negative number Divide positive numbers by a negative number Divide negative numbers by a negative number Divide negative numbers by a negative number Divide negative numbers by a negative number 	Closed book end of	 division to improper fractions and mixed numbers Identify if a fraction is terminating or recurring Recall some decimal and fraction equivalents (e.g. tenths, fifths, eighths) Write a decimal as a fraction Convert a fraction to a decimal by scaling (when possible) Use a calculator to change any fraction to a decimal Understand that a percentage means 'number of parts per hundred' Write a percentage as a fraction Write a quantity as a percentage of another Calculate a percentage of an amount Identify the multiplier for a percentage increase or decrease Use calculators to increase (decrease) an amount by a percentage using multiplicative methods Compare two quantities using percentages Write a fraction as a percentage Write a fraction as a percentage 	 Simplify a ratio by cancelling common factors Identify when a ratio is written in its lowest terms Find the value of a 'unit' in a division in a ratio problem Divide a quantity in two parts in a given part:part ratio Divide a quantity in two parts in a given part:whole ratio Express correctly the solution to a division in a ratio problem Sequences 1 Identify the first 10 triangular numbers Recall the first 15 square numbers Recall the first 5 cube numbers Use linear number patterns to solve problems Use a term- to-term rule to generate a linear sequence Use a term-to-term rule to generate a non- linear sequence Find the term-to-term rule for a sequence Solve problems involving the term-to- term rule for a sequence Solve problems involving the term-to- term rule for a sequence Solve problems involving the term-to- term rule for a non- numerical sequence Open book end of 	 Solve one-step equations when the solution is a whole number (fraction) Solve two-step equations (including the use of brackets) when the solution is a whole number Solve two-step equations (including the use of brackets) when the solution is a fraction Solve three-step equations (including the use of brackets) when the solution is a whole number Solve three-step equations (including the use of brackets) when the solution is a fraction Check the solution to an equation by substitution 	 Apply the meaning of faces, edges and vertices to describe 3D shapes Use notation for parallel lines Know the meaning of 'perpendicular' and identify perpendicular lines Know the meaning of 'regular' polygons Identify line and rotational symmetry in polygons Use AB notation for describing lengths Use ∠ABC notation for describing angles Visualise a 3D shape from its net Recall the names and shapes of special triangles and quadrilaterals Know the properties of the special quadrilaterals (including diagonals)
AUGUUGIIIUIIU	topic assessment	term test	topic assessment	topic assessment	topic assessment	term test

Year	Study	Autumn Term	Autumn Term	Spring Term 1	Spring Term 2	Summer Term	Summer Term
	Modules	1	2			1	2
Year 8 Set 3 and UP	Study Modules	Calculating Space• Recognise that the value of the perimeter can equal the value of area• Use standard formulae for area and volume• Find missing lengths in 2D shapes when the area is known• Know that the area of a trapezium is given by the formula area = $\frac{1}{2} \times \times$ $(a + b) \times h = \left(\frac{a+b}{2}\right)h =$ 	 Straight Line Graphs Know that graphs of functions of the form y = mx + c, x ± y = c and ax ± by = c are linear Plot graphs of functions of the form y = mx + c Plot graphs of functions of the form ax ± by = c Draw and recognise the graphs of y = c and x = c Understand the concept of the gradient of a straight line Write the equation of a line parallel to the x- axis or the y-axis Draw a line parallel to the x-axis or the y-axis given its equation Identify the lines y = x and y = -x Find the gradient of a straight line Sketch a linear graph Plot and interpret graphs of piece-wise linear functions in real contexts Plot and interpret distance-time graphs (speed-time graphs) 	Algebra Manipulation 3 • Expand and simplify an expression (e.g. 3(x+2) +4(x+5)) • Identify common factors (numerical and algebraic) of terms in an expression • Factorise an expression by taking out common factors • Be aware of common scientific formulae • Substitute negative numbers into formulae • Know the meaning of the 'subject' of a formula • Change the subject of a formula when one step is required Change the subject of a formula when a two steps are required	 Presentation of Data Know the meaning of categorical data Know the meaning of discrete data Interpret and construct frequency tables Construct and interpret pictograms (bar charts, tables) and know their appropriate use Construct and interpret comparative bar charts Interpret pie charts and know their appropriate use Construct pie charts when the total frequency is not a factor of 360 Choose appropriate graphs or charts to represent data Construct and interpret vertical line charts Multiply and divide a number positive integer by a power of 10 Multiply and divide a decimal by a power of 10 Use knowledge of place value to multiply with decimals 	Sequences 2 Generate a sequence from a term-to-term rule Understand the meaning of a position-to-term rule to generate a sequence Find the position-to-term rule for a given sequence (nth term) Use algebra to describe the position-to-term rule of a linear sequence (the nth term) Use the nth term of a sequence to deduce if a given number is in a sequence Constructions 2 Use compasses to construct an equilateral triangle Use ruler and compasses to construct an isosceles triangle Use ruler and compasses to construct an isosceles triangle Use ruler and compasses to construct an isosceles triangle Use ruler and compasses to construct an isosceles triangle Use ruler and compasses to construct an isosceles triangle Use ruler and compasses to construct an isosceles triangle Use ruler and compasses to construct an sosceles triangle 	 Measuring Data Understand the mode and median as measures of typicality (or location) Find the mode of set of data Find the median of a set of data Find the median of a set of data when there are an even number of numbers in the data set Use the mean to find a missing number in a set of data Calculate the mean from a frequency table Find the median from a frequency table Find the median from a frequency table Understand the range as a measure of spread (or consistency) Calculate the limitations of different statistics (mean, median, mode, range) Probability is a way of measuring likeliness

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 Find missing lengths in 30 Solving Equations Solving E	are known	sneed		• Ose fuler allu	 Understand the use of
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Straight Line Graphs Solving Equations 2 - Use A line allow allow composition composition of the onty probability solution distingt a subtract probability solution distingt a subtract distingt a subtract	shapes when the volume		place value to divide by		
Solving Equations Solving Equations • Data Model det of Model • Data Model det of Model • Data Model det of Model • Access Mediates in Model Straight Line Graphs • Know that graphs of functions of the form a st by = c are linear • Plot graphs of functions of the form a st by = c • Solving Equations • Be funct a multiplying a three dig to a two obtained when the solution is a whole number • Be funct a multiplying a three dig to a two dig to number or solutions is a whole number • Recent the method of short division • Recent the method of short division • Recent the method of short division • Work out the gradient of a straight line solution is a regative mark by = c • Solving Equations • Recent the method of short division • Recent the method of a straight line paration involves • Recent the method of a straight line paration involves • Recent the method of a straight line graduent involves • Recent the sub- the fact that addition at a diagonal mitror line for the graduent of a straight line graduent involves • Carry tot a reflection method of the frat addition is a diagonal mitror line for the graduent of a straight line graduent involves • Carry tot a reflection method of there division a quarter involves • Carry tot a r	shapes when the volume		a decimai	Ose a ruler and	measure probability
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k Know that graphs of functions of the form $a \propto t y = ca a linearm \times t < \chi = cab big traphs offunctions of the forma \propto t y = ca a linearm \times t < \chi = cab while t = ushnown ont = m \times t < \chi = cat = m the origin to t = m the a calculation tot = m \times t < \chi = cab both sides when thesolution is a wholet = m the a calculation tot = m the a calculation to calculation to a calculationt = m the a calculation to a calculationt = m the a calculation to a calculation to a calculationt = m the a calculation to a cal$	Graphs	Solve linear equations	decimais	noint)	List all the outcomes
• Know that graphs of functions of the form y $= mx + c$, $x \pm y = c$ and $x \pm by = c$ are linear equationsboth sides whole mumbera interve digit of word digit number y digit number y digit number y is functions of the form y $= mx + c$ both sides whole mumbera interve digit number y digit number y digit number y digit number y at the method of short divisiona interve digit number y at the method of short divisiona interve the local y interve a probability outcomesa interve digit number y at the method of short divisiona interve the local y interve a probability or a correst of a correst of a interve a probability for a in to possibility for a is needed to solve a is needed to sol		with the unknown on	Be fluent at multiplying	point)	for an experiment
functions of the form $x = x + x + x = x$ are linar $x = x + y + z$ are linar $x = x + y + z$ are linar $x = x + y + z$ functions $x = x + y + z$ functions $x = x + z + z + z + z + z + z + z + z + z +$	 Know that graphs of 	both sides when the	a three-digit of a two-	Olderstand the mooning of locus (loci)	Identify equally likely
$= mx + c, x \pm y = c a d a x \pm by = c a relinear with the unknown on both sides when the solution is a negative number a market of functions of the form y = m + c number number or a star by = c a relinear distance from a x \pm by = c a relinear distance from a x \pm by = c a relinear distance from a x \pm by = c a number number or a star by = c number number or a star by = c a relinear distance from a x \pm by = c number number or a star by = c number or a star by = number or a star by = c number or a star by = number or a s$	functions of the form y	solution is a whole	digit number by a two-	Meaning of locus (loci)	outcomes
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$\frac{1}{2} x \pm y = c \ are linear \ \ are \ are linear \ are linear \ are linear \ are linea$		 Solve linear equations 	 Be nuent when using the method of short 	fixed distance from a	probabilities for events
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functions of the form y = mx + c Plot graphs of functions of the form y = solution is a negative number • now the order of operations for the form y or form the form y operations for the form y operation y operations for the form y operation y op	 Plot graphs of 	both sides when the	aivision	 Identify when to use 	outcomes
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the graphs of y = c and x = cbrackets• Outperstand and apply the fact that addition and subtraction have equal point of intersection of two graphs corresponds to the solution of a connected equation the fact that addition and subtraction have equal point of intersection of two graphs corresponds to the solution of a connected equation equation the fact that addition and subtraction have equal point of intersection of two graphs corresponds to the solution of a connected equation equation the fact that addition a loci problem• Know that the sum ioci problem identify when an angle bisector is needed to solve a loci problem• Know that the sum ioci problem identify when an angle bisector is needed to solve a loci problem• Know that the sum ioci problem• Write the equation of a the parallel to the +axis or the y-axis given its equation equation by substitution given its equation and y = -x• Carry out a reflection in a diagonal mirror in a diagonal mirr	Draw and recognise	equation involves		is needed to solve a	
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