



Year 7 Mathematics

Scheme of Work and Teaching Plan



GCSE Band	Starting Points				Place Value BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:	Homework Book Pages		
	4	3	2	1		Delta	Theta	Pi
-				A	Represent repeated addition as multiplication and sharing or repeated subtraction as division; Use practical and informal methods and related vocabulary to support multiplication and division, including calculations with remainder.			
3-1			A	M	Understand place value in numbers up to 1000; Read and write whole numbers in figures and words; know what each digit represents.			
			A	M	Use place value to multiply and divide whole numbers by 10 or 100; Understand that multiplying/dividing a number moves digits left/right. Understand that multiplying by 100 is equivalent to multiplying by 10 and 10 again.		12	
GCSE Band	Starting Points				Written and Mental Methods BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
-				A	Partition two-digit numbers in different ways, including into multiples of 10 and 1			
				A	Understand that halving is the inverse of doubling; Recall doubles of all numbers to 20, and the corresponding halves			
				A	Use written methods to add and subtract two digit numbers			12, 13
3-1			A	M	Add and subtract three digit numbers using written methods		13	
			A	M	Multiply and divide integers by a single digit		14, 15	
			A	M	Know the multiplication tables up to 10 x 10 and associated division facts			
			A	M	Solve whole-number problems involving multiplication or division; Including those that give rise to remainders			
5-3		A	M	E	Use written methods to add and subtract whole numbers of up to four digits; Include different numbers of digits and totals of more than two numbers.		13	19
		A	M	E	Use written methods to multiply and divide whole numbers of up to four digits; Use a range of different methods, including the grid method, partitioning and repeated subtraction.	14, 22	14, 15	14, 15
		A	M	E	Use a range of mental methods of computation with all operations			
		A	M	E	Recall multiplication facts up to 12 x 12 and corresponding division facts			
7-5	A	M	E		Use efficient written methods for arithmetic of integers of any size			
7-5	A	M	E		Solve problems using written calculations in real-life contexts *		16	
GCSE Band	Starting Points				Decimals BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
3-1			A	M	Use decimal notation for tenths and hundredths; Know what each digit represents in numbers with up to two decimal places. Use decimals in contexts such as money. Know that £3.06 equals 306p			
5-3		A	M	E	Use written methods to add and subtract decimal numbers with up to two places; Include sums and differences with different numbers of digits, and totals of more than two numbers	55		64
		A	M	E	Multiply and divide decimal numbers with up to two places by a single digit	56, 57		62
7-5	A	M	E		Use efficient written methods to add and subtract decimals of any size, including numbers with differing numbers of decimals		40	60
	A	M	E		Multiply and divide decimals by 10, 100, 1000 and explain the effect. Complete statements: e.g. $0.4 \times \underline{\quad} = 400$ and $0.4 \div \underline{\quad} = 0.004$			
	A	M	E		Solve problems using decimal calculations in real-life contexts	55		63
9-7	M	E			Multiply and divide decimals by 0.1 and 0.01	56, 57		
	M	E			Multiply two decimal numbers together	56, 57, 60		
9	E				Divide two decimals together by changing the divisor to an integer	57, 60		

*Development of problem solving skills



GCSE Band	Starting Points				Negatives BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:	Homework Book Pages		
	4	3	2	1		Delta	Theta	Pi
3-1			A	M	Recognise negative numbers in contexts such as temperature; Order positive and negative whole numbers on a number line or thermometer.	17	17	18
5-3		A	M	E	Add and subtract negative numbers	17	17	18
		A	M	E	Solve problems involving negative numbers in real-life contexts; Understand problems involving temperature and debt/overdrawn balances			
7-5	A	M	E		Multiply and divide negative numbers	13		
GCSE Band	Starting Points				Powers of 10 BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
7-5	A	M	E		Read and write positive integer powers of 10; Know that 1 hundred is $10 \times 10 = 10^2$, 1 thousand is $10 \times 10 \times 10 = 10^3$ etc.			
9-7	M	E			Multiply and divide by any integer power of 10, including negative powers; Understand the relationship between multiplying, dividing and fractional representations of decimals		12	16
9	E				Understand the effects of multiplying and dividing by numbers between 0 and 1; Multiplying by a number between 0 and 1 makes it smaller and dividing makes it larger. Use this to estimate magnitude of answers.			
GCSE Band	Starting Points				Ordering BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
-				A	Order two-digit numbers and position them on a number line; Use the greater than (>) and less than (<) signs			
3-1			A	M	Order integers with up to 4 digits			
5-3		A	M	E	Order decimals with up to three decimal places		53	36
7-5	A	M	E		Compare and order decimals in different contexts; Know that it is necessary to convert into the same units when comparing			
GCSE Band	Starting Points				Rounding and Estimating BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
-				A	Round two-digit numbers to the nearest 10			
3-1			A	M	Round positive whole numbers to the nearest 10, 100 or 1000			
5-3		A	M	E	Round positive numbers to any given power of 10			
		A	M	E	Round decimal numbers to the nearest whole number or one decimal place		36	61
		A	M	E	Round decimal numbers to 2 or 3 decimal places	54	16	
7-5	A	M	E		Use above rounding to approximate the answer to calculations			
	A	M	E		Round integers and decimals to 1 significant number			
9-7	M	E			Approximate calculations; Approximate by rounding numbers to 1 sig fig before calculating			
	M	E			Solve problems using estimations in real-life contexts			
GCSE Band	Starting Points				Using a Calculator BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
3-1			A	M	Understand how to use all operation keys on a calculator			
5-3		A	M	E	Use the calculator and interpret the calculator display in different contexts;			
5-3		A	M	E	Use a calculator to square numbers and to find square roots	15		
7-5	A	M	E		Use the cube key on a calculator	16, 17		
9-7	M	E			Know how to use the x^y key on a calculator to calculate powers			
	M	E			Know how to use the reciprocal key on a calculator			
*Development of problem solving skills complex expressions involving multiple functions						17, 19		



GCSE Band	Starting Points				BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:	Homework Book Pages		
	4	3	2	1		Delta	Theta	Pi
BIDMAS/BODMAS								
BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:								
5-3			M	E	Know and use the order of operations to work out calculations involving division, multiplication, addition and subtraction; For example: a. $16 \div 4 + 8 = 13$ b. $100/4 \times 5 = 5$			44
7-5	A	M	E		Know and use the order of operations, including brackets and indices; For example: a. $3 \times (5 + 3) - (2 \times 7) + 1 = 11$ b. $3 \times (5 + 3) - 2 \times (7 + 1) = 8$ c. $(3^2 + 4^2)^2 = 625$			
Number Facts								
BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:								
3-1			A	M	Find multiples of whole numbers			45
			A	M	Find factors of a numbers less than 100	12		49
			A	M	Understand the meaning of a square number and identify square numbers up to 100	15	19	
5-3		A	M	E	Use the divisibility tests to see if numbers are divisible by 2, 3, 4, 5, 6 and 9			
		A	M	E	Recognise square numbers up to 15 x 15 and their corresponding roots	15		
7-5	A	M	E		Identify the cubes of 2, 3, 4, 5 and 10	16		
	A	M	E		Understand and identify prime numbers			
9-7	M	E			Find the HCF and LCM of a pair of numbers	12	18	50
9	E				Solve problems using HCF and LCM in real-life contexts	12		
Powers								
BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:								
7-5	A	M	E		Write integers in a simpler form using index notation; e.g. $3 \times 3 \times 3 \times 3 \times 3 = 3^5$			
9-7	M	E			Use the law of indices to multiply and divide numbers written in index form; $p^a \times p^b = p^{a+b}$, $p^a \div p^b = p^{a-b}$, $(p^a)^b = p^{ab}$ $4^3 \times 4^2 = 4^5 = 4^{(3+2)}$ and $4^5 \div 4^2 = 4^3 = 4^{(5-2)}$			
	M	E			Find the prime factor decomposition of a number			

*Development of problem solving skills



GCSE Band	Starting Points				Units BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:	Homework Book Pages		
	4	3	2	1		Delta	Theta	Pi
				A	Use units of time (seconds, minutes, hours, days)			
				A	Read the time on a 12-hour analog clock			
				A	Calculate time intervals and find start or end times for a given time interval			
				A	Estimate, compare and measure lengths, weights and capacities; Choose and use standard units (m, cm, kg, litre) and suitable measuring instruments			
				A	Read the numbered divisions on a scale, and interpret the divisions between them;			57
3-1			A	M	Use standard units of time; Read the time in a 24-hour digital clock and use 24-hour clock notation			
5-3		A	M	E	Read and use timetables and calculate journey times			
		A	M	E	Read and interpret scales on a range of measuring instruments			
		A	M	E	Choose and use names and abbreviations of units of measurement; Find appropriate units to measure, estimate, calculate and solve problems			
		A	M	E	Convert one metric unit to another; Convert units of length, volume and mass		37, 44, 73	64
		A	M	E	Convert from one unit to another unit by using a graph			
7-5	A	M	E		Convert between area and volume measures	90, 92		
9-7	M	E			Plot a conversion graph to convert between two units			
	M	E			Solve problems involving measurements in a variety of contexts	90, 95		
GCSE Band	Starting Points				Area and Perimeter BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
3-1			A	M	Estimate the area of an irregular 2D shape by counting squares			
			A	M	Find the area and perimeter of simple shapes by counting squares		42	
5-3		A	M	E	Find the perimeter of 2-D shapes and compound shapes; Including problems where lengths of certain sides need to be found	86	45	83, 86
		A	M	E	Know and use the formula for the area of a rectangle			84, 86, 87
		A	M	E	Know and use the formula for the area of a triangle; Including triangles where the height needs to be identified			
7-5	A	M	E		Use the area of rectangles and triangles to solve problems; Solve problems such as cost of mowing a lawn or amount of paint required	95		88
9-7	M	E			Calculate areas of compound shapes made from rectangles and triangles	85	42	
	M	E			Know and use the formulae for the area of a parallelogram and a trapezium	85		
	M	E			Use the formulae for the circumference and area of a circle;			
9-7	M	E			Solve problems involving area and perimeter in real-life contexts			89
GCSE Band	Starting Points				Surface Area and Volume BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
7-5	A	M	E		Calculate the volume of cubes and cuboids;	89		
9-7	M	E			Calculate the surface area of cubes and cuboids; Identify cubes and cuboids as six rectangles	88		
	M	E			Calculate the surface area of cuboids and shapes made from cuboids			
	M	E			Solve problems involving volume and surface area in real-life contexts; Solve problems involving painting of surfaces or capacity of containers	88, 89, 93, 94		
9	E				Calculate the surface area and volume of prisms; Including problems where areas of complex faces is provided			



GCSE Band	Starting Points				Fractions BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:	Homework Book Pages		
	4	3	2	1		Delta	Theta	Pi
-				A	Use the vocabulary of halves and quarters in context			
3-1			A	M	Recognise what fraction of a shape has been shaded			91
			A	M	Shade a given simple fraction of a shape		49	91
			A	M	Use fraction notation to describe a proportion of a shape; Understand a fraction as part of a whole			92
			A	M	Recognise when two simple fractions are equivalent; Use diagrams to compare simple fractions	34		92
			A	M	Relate fractions to division; Know that $4 \div 8$ is another way of writing $4/8$, which is the same as $1/2$.			
5-3		A	M	E	Identify and find equivalent fractions			
		A	M	E	Reduce a fraction to its simplest form by cancelling common factors		50	92
		A	M	E	Convert mixed numbers to improper fractions, and vice versa	35		
		A	M	E	Calculate fractions of quantities/measurements; Use written methods to calculate simple fractions of a number/quantity e.g. $\frac{3}{4}$ of 400g			93
		A	M	E	Add and subtract simple fractions with common denominators	35	51	94
7-5		A	M	E	Add and subtract simple fractions by writing them with a common denominator	35		
		A	M	E	Express a smaller quantity as a fraction of a larger one			
		A	M	E	Multiply a fraction by an integer; Recognise an integer as a fraction over one	34	51	
		A	M	E	Use division to convert a fraction to decimal	36, 58	52	
		A	M	E	Convert terminating decimals to fractions	58	52	
		A	M	E	Order Fractions by writing as decimals or writing with same denominator			
		A	M	E	Solve problems involving fraction calculations in real-life contexts	42		
9-7		M	E		Add and subtract more complex fractions, including mixed fractions	38		
		M	E		Calculate fractions of quantities with fractional answers			
		M	E		Multiply a fraction by a fraction	37		
GCSE Band	Starting Points				Percentages BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
3-1			A	M	Understand percentage as the number of parts per 100		53	95
5-3		A	M	E	Convert a percentage to a fraction and a decimal and vice versa	36	53	95
		A	M	E	Calculate percentages of whole number quantities (whole number answers); Use mental calculations and written methods, to calculate simple percentages (50%, 25%, 10%, 1%)		54	96, 98
7-5	A	M	E		Calculate percentages of numbers, quantities, measurements (fractional answers); Use both non-calculator and calculator methods, with and without the % key		54	96, 98
9-7		M	E		Express a given number as a percentage of another			
		M	E		Use percentages to compare simple proportions	58		
		M	E		Order a combination of fractions, decimals and percentages			
		M	E		Increase and decrease quantities by a percentage; Use both methods: work out the increase/decrease and then add/subtract, or use a multiplier			
9		E			Solve problems involving percentage change; Understand and use percentage change, including using multipliers.			

*Development of problem solving skills



GCSE Band	Starting Points				Lines BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:	Homework Book Pages		
	4	3	2	1		Delta	Theta	Pi
3-1				M	Use a ruler to draw and measure lines to the nearest centimeter			57
				A M	Use a ruler to measure and draw lines to the nearest millimeter			
				A M	Understand the words line segments, intersection, horizontal, vertical and diagonal			
				A M	Identify parallel and perpendicular lines			89
GCSE Band	Starting Points				Angles BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
-				A	Recognise and use whole, half and quarter turns, both clockwise and anticlockwise			69
				A	Use the four compass directions to describe movement about a grid			
3-1				A M	Describe position and movement; Use the eight compass directions N, S, E, W, NE, NW, SE, SW			69
				A M	Name and identify the different types of angles – acute, obtuse, reflex and right		80	74
5-3		A	M	E	Use ruler and protractor to measure and draw angles to the nearest degree		81	70, 71, 72
		A	M	E	Find missing angles on a straight line;		83, 86	73, 75
		A	M	E	Find missing angles around a point; Use vertically opposite angles to help solve problems	48	86	73, 75
		A	M	E	Understand and know the difference between an interior and exterior angle	47, 49		
7-5	A	M	E		Find the size of a missing angle in any given triangle	45	84, 86	
	A	M	E		Find the size of missing angles in any given quadrilateral		85, 88	
9-7	M	E			Find missing angles in parallel lines; Identify and use alternate, corresponding and allied angles, giving reasons	44, 45, 48, 52		
GCSE Band	Starting Points				Bearings BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
7-5	A	M	E		Estimate and measure bearings of two points			
9-7	M	E			Use three-figure bearings			
	M	E			Solve problems using bearings, including making simple scale drawings			
GCSE Band	Starting Points				Construction and Loci BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
7-5	A	M	E		Make scale drawings; Use and interpret maps and scale drawings in the any real-life context			
9-7	M	E			Construct triangles using a compass, a protractor and a ruler; Be able to construct all three types: SAS, ASA, and SSS		82	77

*Development of problem solving skills

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GCSE Band	Starting Points				Shapes BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:	Homework Book Pages		
	4	3	2	1		Delta	Theta	Pi
3-1			A	M	Visualise and identify common 2-D shapes and 3-D solids			
			A	M	Use Venn and Carroll diagrams to sort and classify shapes based on properties			53. 55
5-3		A	M	E	Use correctly the vocabulary, notation and labelling conventions for shapes; Know the labelling convention for equal sides and parallel sides in shapes			
		A	M	E	Recognise congruent shapes		101	105
		A	M	E	Know the definition of a circle and the names of its parts; Be able to draw a circle given its centre and diameter or radius			
7-5	A	M	E		Draw and recognise shapes from their nets	87		
	A	M	E		Use ruler and protractor to construct simple nets of 3-D shapes, e.g. cuboid, regular tetrahedron, square-based pyramid, triangular prism.			
9-7	M	E			Draw plans and elevations of 3-D			
	M	E			Classify quadrilaterals by their geometric properties Know properties (sides, angles, diagonals and reflection/rotation symmetry) of: isosceles trapezium, parallelogram, rhombus, kite, arrowhead or delta			
	M	E			Solve geometrical problems involving special triangles and quadrilaterals; Use side and angle properties of equilateral, isosceles and right-angled triangles and special quadrilaterals, explaining reasoning with diagrams and text	46		

*Development of problem solving skills



GCSE Band	Starting Points				Expressions BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:	Homework Book Pages			
						Delta	Theta	Pi	
3-1			A	M	Use letter symbols to represent unknown numbers or variables; Understand the idea of an unknown being represented by a letter	24, 26			
5-3			A	M	E	Know the meanings of the words: term, expression and equation; Sort given examples between the three types			
			A	M	E	Use letters, numbers and mathematical symbols to write expressions in meaningful contexts; e.g. subtract 4 from a number: $n - 4$, 4 minus a number: $4 - n$, a number multiplied by 2 and then 5 added $(n \times 2) + 5$ or $2n + 5$	24	28	27
			A	M	E	Use a formula expressed in words; Find values given the formula and express the formula algebraically	26	30	28, 29
7-5	A	M	E		Simplify algebraic expressions by multiplying terms	23			
	A	M	E		Simplify algebraic expressions by collecting like terms	23	26, 27	26, 27	
9-7		M	E		Simplify algebraic expressions using index notation; e.g. $3ab^2 \times 2a^3b^2$				
		M	E		Multiply a single term over a bracket; Include problems where the single term has multiple letters	27	27		
		M	E		Factorise simple expressions; 'Reverse' the process of expanding brackets by taking out one common factor from each term in an expression	28			
9		E			Factorise expressions; Solve problems by taking out two common factors from each term in an expression				
		E			Expand and simplify linear expressions including negative signs; e.g. Simplify $3(2x - 5) - 2(x + 5)$ by expanding then simplifying				
GCSE Band	Starting Points				Equations BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:				
	4	3	2	1					
3-1			A	M	Begin to understand the role of the 'equals' sign; e.g. $\blacktriangledown + \blacklozenge = 4$. What numbers could \blacktriangledown and \blacklozenge be?				
5-3		A	M	E	Solve one-step linear equations with whole number coefficients; Questions with the unknown on one side only and involving one operation				
7-5	A	M	E		Solve two-step linear equations with whole number coefficients; Questions with the unknown on one side only and involving two operations	65, 69			
	A	M	E		Use equations to solve problems in a range of contexts; Construct equations from a given scenario and solve the equation/problem	70, 73			
9-7		M	E		Solve more complex, three-step, linear equations; Include equations with brackets and unknown on both sides				
		M	E		Construct and solve more complex linear equations; Include equations with brackets, unknown on both sides and negative signs anywhere in the equation	73			
9		E			Solve linear equations with fractional coefficients				
		E			Change the subject of a formula by using the same methods as solving equations; Include questions where the subject is on both sides of the formula				
		E			Solve simple linear inequalities and represent the solution set on a number line; Use the same techniques as linear equations to solve the inequalities				
GCSE Band	Starting Points				Substitution BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:				
	4	3	2	1					
7-5	A	M	E		Substitute integers into simple linear expressions and formulae	25, 27	29	28, 33	
9-7	M	E			Substitute positive and negative numbers into complex expressions and formulae; *Development of problem solving skills	27			



GCSE Band	Starting Points				Ratios BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:	Homework Book Pages		
	4	3	2	1		Delta	Theta	Pi
5-3		A	M	E	Use ratio notation; e.g. given a selection of cubes, write the ratio of red cubes to blue cubes		71	
	A	M	E		Simplify a ratio by cancelling common factors	75	71	
	A	M	E		Simplify a ratio expressed in different units; e.g. 2 m : 50cm, 450g : 5kg, 500mm : 75cm : 2.5m	79	73	
7-5	A	M	E		Simplify a ratio expressed in fractions or decimals			
	M	E			Divide a quantity into two parts in a given ratio and solve problems; e.g. 28 pupils are going on a visit. They are in the ratio of 3 girls to 4 boys. How many boys are there?	76	72	
9-7	M	E			Compare ratios by changing them to the form m : 1 or 1 : m	79		
9	E				Solve problems with ratios when only part of the information, instead of a total, is known; Potting compost is made from loam, peat and sand in the ratio 7:3:2 respectively. A gardener used 1.5 litres of peat to make compost. How much loam did she use?			
	E				Solve problems involving ratios in real-life contexts; Consider numerical, algebraic and pictorial solutions to challenging problems. Including examples of bar modelling.	81	74, 76, 77	
GCSE Band	Starting Points				Proportion BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
5-3		A	M	E	Convert ratios into fractions of a whole; Use conversion to fractions, decimals or percentages to compare ratios			
7-5	A	M	E		Solve simple problems involving direct proportion; e.g. 3 bars of chocolate cost 90p. How much will six bars cost? 1 litre of fruit drink contains 200 ml of orange juice. How much orange juice is there in 1.5 litres of fruit drink?	78	70	48
9-7	M	E			Use unitary method to solve problems involving proportion in real-life contexts	79		
	M	E			Find the Best Buys; Find the cost per unit weigh and use the above to find which product is the cheaper			
GCSE Band	Starting Points				Rates of Change BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
9-7	M	E			Recognise and use the relationship between speed, distance and time; Calculate one variable given the other two.			
	M	E			Solve problems involving speed, distance and time in real-life contexts			
9	E				Solve problems involving other compound measures; *Development of problem solving skills (mass and volume) and pressure (force and area)			



GCSE Band	Starting Points				Sequences BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:	Homework Book Pages		
	4	3	2	1		Delta	Theta	Pi
-				A	Recognise sequences of numbers, including odd and even numbers; e.g. continue a sequence that increases or decreases in regular steps			
3-1				A M	Recognise a wider range of sequences; Know and use Fibonacci sequences and the list of triangle numbers.			
5-3		A	M	E	Generate simple integer sequences; Explore and predict terms in sequences generated by counting and from flow charts. Generate sequences by multiplying or dividing by a constant factor.		91	
		A	M	E	Generate terms of a sequence by looking at differences; Continue sequences and explain in words how the sequence is formed	96	94	
7-5	A	M	E		Use rules expressed in words to solve problems with sequences; Generate the first few terms, and any term, of a sequence. Check if a term is in the sequence and explain how you know.			
9-7	M	E			Use an algebraic rule for the nth term of a sequence to solve problems; Use the nth term to find the first few or specific terms and test whether given numbers are in a sequence	96, 97, 98		
	M	E			Generate sequences from simple practical contexts; Find the first few terms of the sequence arising from patterns or real-life scenarios. Describe the general term, first using words, then symbols.	98, 101	92, 96	
	M	E			Find an algebraic rule for the nth term of a sequence; Use the nth term to find solve problems as above	97		
GCSE Band	Starting Points				Functions BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
5-3		A	M	E	Express simple functions in words and using symbols; Explore simple function machines by: finding outputs (y) for different inputs (x) and finding inputs for different outputs. Given inputs and outputs, find the function			
		A	M	E	Find simple functions given inputs and outputs;		25, 31	24, 25, 30, 32, 34
		A	M	E	Express one-step functions algebraically			
7-5	A	M	E		Express two-step functions algebraically	24		
	A	M	E		Represent functions in mapping diagrams; Create diagrams with given outputs/inputs sections and arrows for a given function			59
GCSE Band	Starting Points				Coordinates BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
5-3		A	M	E	Use and interpret coordinates in the first quadrant; Given the coordinates of three vertices of a rectangle, find the fourth			36
7-5	A	M	E		Use and interpret coordinates in all four quadrants	99	93	36, 39
	A	M	E		Given the coordinates of points A and B, find the mid-point of the line segment AB	99	93	
GCSE Band	Starting Points				Graphs BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
5-3		A	M	E	Use a graph to convert one unit to another unit			
7-5	A	M	E		Recognise straight line graphs parallel to the x-axis or y-axis and $y = x$	100		41
9-7	M	E			Plot the graphs of linear functions; By completing a table of values when y is given explicitly in terms of x	100, 102	95	37, 39
	M	E			Interpret travel graphs; Read information from a travel graph and find an average speed from a travel graph			
	M	E			Interpret graphs arising from real situations; e.g. sketch a line graph to show the depth of water against time when water runs steadily from a tap into different types of jars.			
9	E				Draw straight line graphs using the gradient-intercept method; e.g. for $y = 3x - 1$, start at -1 on the y-axis, move one square across and three squares up and mark this point with a dot and repeat again			
	E				Find the gradient of a given line			

*Development of problem solving skills



GCSE Band	Starting Points				Translations BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:	Homework Book Pages		
	4	3	2	1		Delta	Theta	Pi
3-1			A	M	Identify line symmetry in patterns and 2-D shapes; Draw lines of symmetry on basic shapes			
			A	M	Recognise shapes with reflective symmetry			
			A	M	Reflect 2-D shapes in a mirror line along one side; Be comfortable with both horizontal and vertical mirror lines			102
5-3		A	M	E	Translate 2-D shapes; Understand translations in words as well as vectors			
7-5	A	M	E		Tessellate a 2-D shape			
GCSE Band	Starting Points				Reflections BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
3-1			A	M	Identify line symmetry in patterns and 2-D shapes; Draw lines of symmetry on basic shapes		102	80
			A	M	Recognise shapes with reflective symmetry			
			A	M	Reflect 2-D shapes in a mirror line along one side; Be comfortable with both horizontal and vertical mirror lines			102
5-3		A	M	E	Reflect 2-D shapes in a diagonal line along one side			
GCSE Band	Starting Points				Rotations BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
5-3		A	M	E	Recognise shapes with rotational symmetry			80
		A	M	E	Find the order of rotational symmetry for a 2-D shape		106	81, 82
		A	M	E	Rotate 2-D shapes in any position, given a direction and centre of rotation; Understand how the orientation of a shape changes with rotation of 90° or 180°			104
GCSE Band	Starting Points				Descriptions and Combinations BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
9-7	M	E			Describe transformations in simple cases; Write translations as descriptions and vectors, identify the mirror line in a reflection and find the angle, direction or centre of rotation.		103, 104	106, 110
	M	E			Transform 2-D shapes by combinations of rotations, reflections and translations		105, 107	103
	M	E			Describe combined transformations		108	
GCSE Band	Starting Points				Enlargements BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
9-7	M	E			Enlarge a 2-D shape given a centre of enlargement and a scale factor; Work with positive whole-number scale factors. Know the Ray method, coordinate method and counting squares method.			
	M	E			Describe an enlargement; Find the centre of enlargement and/or the scale factor from the object and image			
9	E				Enlarge 2-D shapes, using fractional and negative scale factors			



GCSE Band	Starting Points				Probability BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:	Homework Book Pages		
	4	3	2	1		Delta	Theta	Pi
3-1			A	M	Understand the basic language of probability; Understand and use descriptions such as impossible/unlikely/even/likely/certain		60	
5-3		A	M	E	Understand that the probability scale runs from 0 to 1; Represent events and descriptions on a probability scale		60	
7-5	A	M	E		Calculate the probability of simple outcomes of events; e.g. Find the probability of picking a red counter		61	
	A	M	E		Find and justify probabilities based on equally likely outcomes in simple contexts; Understand the probabilities are 'number of successes over number of trials'			
	A	M	E		Understand experimental probability; Calculate relative frequencies from experiments and compare experimental and theoretical probabilities in different contexts.		63	
9-7	M	E			Identify all the possible mutually exclusive outcomes of a single event; Use the addition rule to find probabilities of outcomes		62	
	M	E			Understand and use sample spaces; Find and record all possible outcomes for two events in a systematic way, using diagrams and tables.			
	M	E			Understand the total probability of all possible outcomes is 1; Calculate the probability of an event happening when the probability that it does not happen is known. Find missing probabilities given a table of outcomes and probabilities.		62	
	M	E			Estimate probabilities from experimental data; Understand that if an experiment is repeated there may be different outcomes and know how to get better estimates of probability.		68	
	M	E			Predict the expected number of successes from a given number of trials		64, 67	
9	E				Recognise the difference between independent and dependent events; Understand and identify mutually exclusive events			

*Development of problem solving skills

May include some lessons/investigations after the exams



GCSE Band	Starting Points				Planning and Collecting Data BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:	Homework Book Pages		
	4	3	2	1		Delta	Theta	Pi
3-1			A	M	Use Venn Diagrams and Two-Way Tables to sort and classify information			
5-3		A	M	E	Collect and represent discrete data using tally charts and frequency tables		34	
7-5	A	M	E		Collect and represent data using grouped tally charts and frequency tables; Use equal class intervals and discuss appropriate groupings			
9-7	M	E			Construct frequency tables for gathering continuous data			
	M	E			Discuss the use of surveys; Design a survey to capture relevant data from one or more sources. Design a suitable data collection sheet.			
	M	E			Design and criticise questions for questionnaires; Understand the requirements; clear, specific, all possibilities and no overlaps. Know about bias in questionnaires.			
	M	E			Understand the difference between population and sample; Know the different sampling techniques and discuss limitations. Determine appropriate sample sizes.			
9	E				Use the data-handling cycle to test a hypothesis			
GCSE Band	Starting Points				Representing Data BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
3-1			A	M	Read, draw and interpret a simple pictogram			1, 7
5-3		A	M	E	Read, draw and interpret a bar chart	1	3	2, 8
		A	M	E	Read, draw and interpret a dual bar chart	1	5	
7-5	A	M	E		Read, draw and interpret simple time series (line) graphs		10	
	A	M	E		Construct simple scatter graphs by plotting points	6		
	A	M	E		Construct and interpret pie charts	5		
	A	M	E		Use a stem-and-leaf diagram to find the median, range and mode			
9-7	M	E			Construct an ordered stem-and-leaf diagram			
	M	E			Construct and interpret a back to back stem-and-leaf diagram			
	M	E			Understand the uses of a scatter diagram; Develop further the understanding of correlation. Draw and use a line of best fit by inspection.	6		
	M	E			Construct and use simple two-way tables for discrete data.	1		
GCSE Band	Starting Points				Interpreting Data BY THE END OF THIS TOPIC YOU WILL BE ABLE TO:			
	4	3	2	1				
3-1			A	M	Calculate the mode, median and range for small sets of discrete data		1	5, 6
5-3		A	M	E	Calculate the mean for a small set of discrete data			
7-5	A	M	E		Find the modal class and range from a grouped table of continuous data	3	8	
9-7	M	E			Compare different sets of data using the mean and the range	3		9, 10, 11
	M	E			Calculate the mean, median and mode from a frequency table of discrete data	2		3, 4
9	E				Understand the advantages and disadvantages of each type of average; Decide which average to use in different situations.		4	

*Development of problem solving skills

Includes investigations after the exams