Year of programme	Chapter	Ref	Lesson	GCSE Ref	GCSE Objective statement	MyMaths	Old text p	Mathswatch clip	
Year 11	19 Pythagoras and trigonometry (Geometry)	19.1	Pythagoras' theorem	G6 [b-d,f] G20 [b,c,**f,g**]	Apply angle facts, triangle congruence, similarity and properties of quadrilaterals to conjecture and derive results about angles and sides, including Pythagoras' Theorem and the fact that the base angles of an isosceles triangle are equal, and use known results to obtain simple proofs. Know the formulae for: Pythagoras' theorem, $a^2 + b^2 = c^2$, and the trigonometric ratios, sin θ = opposite/hypotenuse, cos θ = adjacent/hypotenuse and tan θ = opposite/adjacent; apply Pythagoras' theorem to find angles and lengths in right-angled triangles in two dimensional figures. Apply the trigonometric ratios to find angles and lengths in right-angled triangles and, where possible, general triangles in two and three dimensional figures.	1112 1064	20.1-20.3 p374-382 29.1 p551-553		
Year 11		19.2	Trigonometry 1	R12 [c] G19 [**b**] G20 [**g**] G21	Compare lengths, areas and volumes using ratio notation; make links to similarity (including trigonometric ratios) and scale factors. Apply the concepts of congruence and similarity, including the relationships between lengths, areas and volumes in similar figures. Know the formulae for: Pythagoras' theorem, $a^2 + b^2 = c^2$, and the trigonometric ratios, sin θ = opposite/hypotenuse, cos θ = adjacent/hypotenuse and tan θ = opposite/adjacent; apply Pythagoras' theorem to find angles and lengths in right-angled triangles in two dimensional figures. Apply the trigonometric ratios to find angles and lengths in right-angled triangles and, where possible, general triangles in two and three dimensional figures. Know the exact values of sinθ and cosθ for θ = 0°, 30°, 45° , 60° and 90°; know the exact value of tanθ for θ = 0°, 30°, 45° and 60°.	1131 1133	20.4-20.5 p383-392	150 168 173 217 218	4 5 5 8&9 8&9
Year 11		19.3	Trigonometry 2	G1 [a-c,e] G22	Use conventional terms and notations: points, lines, vertices, edges, planes, parallel lines, perpendicular lines, right angles, polygons, regular polygons and polygons with reflection and/or rotation symmetries; use the standard conventions for labelling and referring to the sides and angles of triangles; draw diagrams from written description. Know and apply the sine rule, $a/\sin A = b/\sin B = c/\sin C$ and cosine rule, $a^2 = b^2 + c^2 - 2bc \cos A$, to find unknown lengths and angles.	1095 1120		201 202 203	7 7 7
Year 11		19.4	Pythagoras and trigonometry problems	G1 [b,c,e] G20 G22 G23	Use conventional terms and notations: points, lines, vertices, edges, planes, parallel lines, perpendicular lines, right angles, polygons, regular polygons and polygons with reflection and/or rotation symmetries; use the standard conventions for labelling and referring to the sides and angles of triangles; draw diagrams from written description. Know the formulae for: Pythagoras' theorem, $a^2 + b^2 = c^2$, and the trigonometric ratios, sin θ = opposite/hypotenuse, cos θ = adjacent/hypotenuse and tan θ = opposite/adjacent; apply Pythagoras' theorem to find angles and lengths in right-angled triangles in two dimensional figures. Apply the trigonometric ratios to find angles and lengths in right-angled triangles and, where possible, general triangles in two and three dimensional figures. Know and apply the sine rule, $a/\sin A = b/\sin B = c/\sin C$ and cosine rule, $a^2 = b^2 + c^2 - 2bc \cos A$, to find unknown lengths and angles. Know and apply Area = $1/2\ ab \sin C$ to calculate the area, sides or angles of any triangle.	1112 1095 1120	29.1-9 p550-574	217 218	8&9 8&9

Year 11		19.5	Vectors	G25	Apply addition and subtraction of vectors, multiplication of vectors by a scalar, and diagrammatic and column representations of vectors. Use vectors to construct geometric arguments and proofs.	1134 1135	33.0-33.5 p619-633	174 219	5 8&9
			Review						
			Assessment 1						
Year 11	20 Combined events (Probability)	20.1	Sets	P4 P6 [a,c] P8 [c]	Apply the property that the probabilities of an exhaustive set of outcomes sum to one; apply the property that the probabilities of an exhaustive set of mutually exclusive events sum to one. Enumerate sets and combinations of sets systematically, using tables, grids, Venn diagrams and tree diagrams. Calculate the probability of independent and dependent combined events, including using tree diagrams and other representations, and know the underlying assumptions.	1262 1921 1922		127 185	3 6
Year 11		20.2	Possibility spaces	N5 P6 [b, c] P7	Apply systematic listing strategies including use of the product rule for counting (i.e. if there are m ways of doing one task and for each of these, there are n ways of doing another task, then the total number of ways the two tasks can be done is $m \times n$ ways). Enumerate sets and combinations of sets systematically, using tables, grids, Venn diagrams and tree diagrams. Construct theoretical possibility spaces for single experiments with equally likely outcomes and use these to calculate theoretical probabilities. Construct theoretical possibility spaces for combined experiments with equally likely outcomes and use these to calculate theoretical probabilities.	1263 1199	28.1 p529-532	126	3
Year 11		20.3	Tree diagrams	P1 [a] P2 P4 P6 [a,b] P8	Record describe and analyse the frequency of outcomes of probability experiments using tables and frequency trees. Apply ideas of randomness, fairness and equally likely events to calculate expected outcomes of multiple future experiments. Apply the property that the probabilities of an exhaustive set of outcomes sum to one; apply the property that the probabilities of an exhaustive set of mutually exclusive events sum to one. Enumerate sets and combinations of sets systematically, using tables, grids, Venn diagrams and tree diagrams. Calculate the probability of independent and dependent combined events, including using tree diagrams and other representations, and know the underlying assumptions.	1208 1334 1935		151 175	4 5
Year 11		20.4	Conditional probability	P9	Calculate and interpret conditional probabilities through representation using expected frequencies with two-way tables, tree diagrams, and Venn diagrams.	1263 1334	28.6-7 p541-545	204 61	7 2
			Review						
			GCSE paper						
	Lifeskills 4		The launch party						
Year 9		21.1	Linear sequences	A23 A25 [**b**]	Generate terms of a sequence from either a term-to-term or a position-to-term rule. Deduce expressions to calculate the nth term of linear and quadratic sequences.	1165 1173		37 102 103	2 3 3
YEAR 9	21 Sequences (Algebra)	21.2	Quadratic sequences	A23 A24 [a-e,g,**h**] A25 [a]	Generate terms of a sequence from either a term-to-term or a position-to-term rule. Recognise and use sequences of triangular, square and cube numbers, simple arithmetic progressions, Fibonacci type sequences, quadratic sequences, and simple geometric progressions (r^n where n is an integer, and r is a rational number > 0 or a surd) and other sequences. Deduce expressions to calculate the nth term of linear and quadratic sequences.	1166,		163 213	5 8&9

YEAR 9		21.3	Special sequences	A23 A24	Generate terms of a sequence from either a term-to-term or a position-to-term rule. Recognise and use sequences of triangular, square and cube numbers, simple arithmetic progressions, Fibonacci type sequences, quadratic sequences, and simple geometric progressions (r^n where n is an integer, and r is a rational number > 0 or a surd) and other sequences.	1165, 1166 1920 1054		104 141	3 4
			Review						
			Assessment						
Year 9	22 Units and proportionality (Ratio and proportion)	22.1	Compound units	R1 [c,d] R11	Change freely between related standard units (e.g. time, length, area, volume/capacity, mass) and compound units (e.g. speed, rates of pay, prices, density, pressure) in numerical and algebraic contexts. Use compound units such as speed, rates of pay, unit pricing, density and pressure.	1121 1246	7.3-7.4 P110-113	142	4
YEAR 11		22.2	Converting between units	R1 [b,c,d] R12 [**b**] G19	Change freely between related standard units (e.g. time, length, area, volume/capacity, mass) and compound units (e.g. speed, rates of pay, prices, density, pressure) in numerical and algebraic contexts. Compare lengths, areas and volumes using ratio notation; make links to similarity (including trigonometric ratios) and scale factors. Apply the concepts of congruence and similarity, including the relationships between lengths, areas and volumes in similar figures	1061 1329	23.3 P453-454 23.7 P461-462	142 200	4 7
YEAR 11		22.3	Direct and inverse proportion	R6 [a] R7 R8 R10 R13 R14	Express a multiplicative relationship between two quantities as a ratio or a fraction Understand and use proportion as equality of ratios. Relate ratios to fractions and to linear functions. Solve problems involving direct and inverse proportion, including graphical and algebraic representations. Understand that X is inversely proportional to Y is equivalent to X is proportional to $1/Y$; construct and interpret equations that describe direct and inverse proportion. Interpret the gradient of a straight line graph as a rate of change; recognise and interpret graphs that illustrate direct and inverse proportion.	1048 1059 1036	27.1-27.5 P515-524	199	7
YEAR 11		22.4	Rates of change	R15	Interpret the gradient at a point on a curve as the instantaneous rate of change; apply the concepts of average and instantaneous rate of change (gradients of chords and tangents) in numerical, algebraic and graphical contexts (this does not include calculus).	1312		208	8&9
YEAR 11		22.5	Growth and decay	R14 R16	Interpret the gradient of a straight line graph as a rate of change; recognise and interpret graphs that illustrate direct and inverse proportion. Set up, solve and interpret the answers in growth and decay problems, including compound interest and work with general iterative processes.	1238 1070		208 164	208 5
			Review						
			Assessment						
	Mocks								