

Maths Y11 GCSE - Foundation - SOW 2021-22

Year	Term	Week	Topic	OUP Text book Exercises	GCSE Ref	Specification Content	Specification Notes	MyMaths	Hegarty Maths (Foundation)	Hegarty Maths (Additional Foundation)
		1	Basic fractions (Number)	5.1s (q1-7), 5.1a(q1-2, 5, 7-9), 5.2s(q1-3, 6-7), 5.2a(q1, -5, 9-10) 5.3s, 5.3a, 17.2s(1-2, 4, 9)	N1	Order positive and negative fractions		1019 1042 1075 1018 1017 1040 1046 1047	59 60 61 62 63 64 65 66 67 68 69 70 71 72 77 78 79 80	
					N2	Apply the four operations, including formal written methods, to simple fractions (proper and improper) and mixed numbers - both positive and negative				
					N8	Calculate exactly with fractions				
			Basic decimals (Number)	5.1s (q8-12), 5.1a(q4, 6, 10), 5.4s(q3-4, 6-8, 16)	N1	Order positive and negative decimals		1016	45 46 52 73 74 47 48 49 50 51	
					N2	Apply the four operations, including formal written methods, to decimals – both positive and negative Understand and use place value (e.g. when calculating with decimals)				
					N10	Work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and $\frac{7}{2}$ or 0.375 and $\frac{3}{8}$)	including ordering			
		Equations (Algebra)	6.1s, 6.1a	A2	Substitute numerical values into formulae and expressions, including scientific formulae	unfamiliar formulae will be given in the question	1158 1167 1186 1187 1159 1171	155 176 177 178 179 180 181 182 183 189	184 185 186 188 278	
			10.1s(q1-4, 5-9, 13-14), 10.1a, 10.2s(q1-5, 7-12), 10.2a	A17	Solve linear equations in one unknown algebraically <u>including those with the unknown on both sides of the equation</u>	including use of brackets	1154 1925			780 781
		2		Transformations (Geometry and Measures)	7.3s, 7.3a, 7.4s, 7.4a	G7	Identify, describe and construct congruent and similar shapes, on co-ordinate axes, by considering rotation, reflection, translation and enlargement (<u>including fractional scale factors</u>)		1099 1113 1115 1127 1125	637 638 639 640 641 642 643 644 645 648 649 650 651 652 653 654
						G24	Describe translations as 2D vectors			
				Scale diagrams and bearings (Geometry and Measures)	7.1s, 7.1a	R2	Use scale factors, scale diagrams and maps	including geometrical problems	1086 1103 1117 1146	492 493 494 495 496 864 865 866 867 868 869
		G15	Measure line segments and angles in geometric figures, including interpreting maps and scale drawings and use of bearings	including the eight compass point bearings and three-figure bearings						

3	Sequences (Algebra)	All of chapter 21	A23	Generate terms of a sequence from either a term-to-term or a position-to-term rule	including from patterns and diagrams		196 197 198 261	247 263 264
			A24	Recognise and use: sequences of triangular, square and cube numbers simple arithmetic progression <u>Fibonacci type sequences</u> <u>quadratic sequences</u> and <u>simple geometric progressions</u> (r^n where n is an integer and r is a rational number > 0)	other recursive sequences will be defined in the question	1173 1165 1053 1054 1920		
			A25	Deduce expressions to calculate the n th term of a linear sequence				
	Calculating with percentages (Number)	12.3s, 12.3a	R9	Solve problems involving percentage change, including: percentage increase / decrease problems original value problems simple interest, including in financial mathematics	problems may be set in context using a multiplier	1060 1237 1302 1934	90 93 96 97 98	91 92
4	Indices (Number)	13.3s, 13.3a, 17.1s, 17.1a	N6	Use positive integer powers and associated real roots (square, cube and higher) Recognise powers of 2, 3, 4, 5	including square numbers up to 15×15 know that $1000 = 10^3$ and 1 million = 10^6	1053 1924 1033 1924	99 100 101	102 103 104 105 106 107
			N7	Calculate with roots and with integer indices				
	Standard form (Number)	17.3s, 17.3a, 9.2s, 9.2a	N2	Understand and use place value (e.g. when working with very large or very small numbers)				121 122 123 124 125 126 127 128
			N9	Calculate with and interpret standard form where $A \times 10^n$ and n is an integer $1 \leq A < 10$	with and without a calculator interpret calculator displays	1049 1050 1051 1002 1004 1005 1043		

Autumn Term

5	Ratio and Proportion (Ratio, proportion and rates of change)	12.1s, 12.1a, 12.2s, 12.2a	R4	Use ratio notation, including reduction to simplest form		328 329 330 331 332 333 334 339 340 341 342 739 740 741 742	335 336 337 338	
			R5	Divide a given quantity into two parts in a given part:part or part:whole ratio Express the division of a quantity into two parts as a ratio Apply ratio to real contexts and problems (such as those involving conversion, comparison, scaling, mixing and concentrations)	including better value or best buy problems			
			R6	Express a multiplicative relationship between two quantities as a ratio or a fraction				
			R7	Understand and use proportion as equality of ratios				
			R8	Relate ratios to fractions and to linear functions				
6	Rearranging formulae (Algebra)	6.1s, 6.1a	A5	Understand and use standard mathematical formulae Rearrange formulae to change the subject	including use of formulae from other subjects in words and using symbols	1150 1151 1157	280 281 282 283 284 154 285 286 287	
			A4	Simplify and manipulate algebraic expressions by: <u>expanding products of two binomials</u> <u>factorising quadratic expressions of the form X^2+bx+c including the difference of two squares</u> simplifying expressions involving sums, products and powers, including the laws of indices		1150 1151 1157	222 162 163 164 165 221 223 224	
	Measures (Geometry and Measures)	9.3s (q9-11), 9.3a (5-7)	N16	<u>Apply and interpret limits of accuracy</u>		1006 1067	691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 716 717 718 719 720 724	774 775 776 Clips 774 - 776 covered previously in section 9
			G14	Use standard units of measure and related concepts (length, area, volume / capacity, mass, time, money etc)			714 715 721 722 723 725 726 727 728 729 731	
		9.3s(q1-8), 9.3a(1-4, 8-9), 22.1s, 22.1a	N13	Use standard units of mass, length, time, money and other measures (including standard compound measures) using decimal quantities where appropriate	know and use metric conversion factors for length, area, volume and capacity. Imperial / metric conversions will be given in the question	1121 1246 1061	734 735 736 737 738	

			R1	Change freely between related standard units (e.g. time, length, area, volume / capacity, mass) and compound units (e.g. speed, rates of pay, prices, <u>density</u> , <u>pressure</u>) in numerical and <u>algebraic</u> contexts				
			R11	Use compound units such as speed, rates of pay, unit pricing, <u>density</u> and <u>pressure</u>	including making comparisons			
7	<u>Collecting and representing data</u> <u>(Statistics and Probability)</u>	4.1s, 4.1a, 4.2s, 4.2a, 4.3s, 4.3a, 16.4s, 16.4a	S2	Interpret and construct tables, charts and diagrams including, for categorical data: frequency tables bar charts pie charts pictograms vertical line charts for ungrouped discrete numerical data <u>tables and line graphs for time series data</u> know their appropriate use	including choosing suitable statistical diagrams	1193 1214 1205 1206 1207 1198	401 402 403 425 426 427 428 429	392 393 450 451 452
		16.1s, 16.1a	S4	Interpret, analyse and compare the distributions of data sets from univariate empirical distributions through appropriate graphical representation involving discrete, continuous and grouped data	know and understand the terms primary data, secondary data, discrete data and continuous data	1193 1196		
8-9	Revision and Exams							
10	<u>2D representations of 3D shapes</u> <u>(Geometry and Measures)</u>	15.1s(q6-9), 15.1a(q3-5)	G13	<u>Construct and interpret plans and elevations of 3D shapes</u>		1098		837 838 839 840 841 842 843 844
	<u>Constructions and loci</u> <u>(Geometry and Measures)</u>	11.3s, 11.3a, 11.4s, 11.4a	G2	<u>Use the standard ruler and compass constructions:</u> <u>perpendicular bisector of a line segment</u> <u>constructing a perpendicular to a given line from / at a given point</u> <u>bisecting a given angle</u> <u>Know that the perpendicular distance from a point to a line is the shortest distance to the line</u> <u>Use these to construct given figures and solve loci problems</u>	constructing a 60° angle	1089 1090 1147		660 661 662 663 664 665 666 667 668 669 674 675 676 677 678 679

Year 11

11	Solving quadratic equations (Algebra)	10.3s, 10.3a	A18	<u>Solve quadratic equations algebraically by factorising</u> <u>Find approximate solutions using a graph</u>	1169 1181	257	230 234	
		12	Pythagoras' Theorem and Trigonometry (Geometry and Measures)	19.1s, 19.1a	G20	<u>Know the formula for Pythagoras' Theorem $a^2+b^2=c^2$</u> <u>Apply it to find length in right angled triangles in two dimensional figures</u>	1053 1112	497 498 499 501 502
				19.2s, 19.2a, 19.3s, 19.3a	G20	<u>Know and use the trigonometric ratios</u> $\sin \theta = \frac{\textit{opposite}}{\textit{hypotenuse}}$ $\cos \theta = \frac{\textit{adjacent}}{\textit{hypotenuse}}$ and $\tan \theta = \frac{\textit{opposite}}{\textit{adjacent}}$	1133 1145 1131 1133 1145	508 509 510 511 512 513 514 515
						<u>Apply them to find angles and lengths in right-angled triangles in two dimensional figures</u>		
13	Probability (Statistics and Probability)	20.1s, 20.1a, 20.3s, 20.3a	P2	Apply ideas of randomness, fairness and equally likely events to calculate expected outcomes or multiple future experiments		355 356 358 359 360 370 371 372 373 374 375 376 377 378 379 380 383 384 422 423 424	357 361 362 363	
			P3	Relate relative expected frequencies to theoretical probability, using appropriate language and the 0 – 1 probability scale				
			P5	<u>Understand that empirical unbiased samples tend towards theoretical probability distributions with increasing sample size</u>	1262 1921 1922 1208 1334 1935			
			P6	Enumerate sets and combinations of sets systematically using tables, grids, Venn diagrams <u>and tree diagrams</u>				
			P8	<u>Calculate the probability of independent and dependent combined events, including using tree diagrams and other representations, and know the underlying assumptions</u>	know when to add and when to multiply two or more probabilities			

14	Simultaneous equations (Algebra)	10.4s, 10.4a	A19	<u>Solve two simultaneous equations in two variables (linear / linear) algebraically</u> <u>Find approximate solutions using a graph</u>		1175 1176 1319	217	190 191 192 193 194 195 218 219
			A21	<u>Translate simple situations or procedures into algebraic expressions or formulae</u> <u>Derive two simultaneous equations</u> <u>Solve the equations and interpret the solution</u>	Including the solution of geometrical problems and problems set in context			
	Inequalities (Algebra)	10.5s, 10.5a	A22	<u>Solve linear inequalities in one variable</u> <u>Represent the solution set on a number line</u>	know the conventions of an open circle on a number line for a strict inequality and a closed circle for an included boundary	1161 1162 1930		265 266 267 268 269 270 271 272
15	Coordinates and linear graphs (Algebra)	14.1s, 14.1a, 14.2s, 14.2a	A8	Work with co-ordinates in all four quadrants		1093 1394 1395 1396 1153 1312 1314	196 197 198 199 200 201 202 205 206 207	203 204 208 209 210 211 212 213 214 220
			G11	Solve geometrical problems on co-ordinate axes				
			A9	Plot graphs of equations that correspond to straight line graphs in the co-ordinate plane <u>Use the form $y = mx + c$</u> <u>to identify parallel lines</u> <u>Find the equation of the line through two given points, or through one point with a given gradient</u>				
			A10	Identify and interpret gradients and intercepts of linear functions graphically and algebraically				
	Quadratic graphs (Algebra)	18.1s, 18.1a	A12	Recognise, sketch and interpret graphs of quadratic functions		1168 1169		252 253 254 255
A11	<u>Identify and interpret roots, intercepts and turning points of quadratic functions graphically</u> <u>Deduce roots algebraically</u>	including the symmetrical property of a quadratic						

Surface Area and Volume (Geometry and Measures)	3.3s, 3.3a	R12	Compare lengths, areas and volumes using ratio notation	1137 1138 1139 1246 1136	568 569 570 571 572 573 574 575 584 585	576 577 579 580 581 582 586 587 588
	15.2s, 15.2a	G16	Know and apply formulae to calculate the volume of cuboids and other right prisms (including cylinders)			
	15.3s, 15.3a	G17	<u>Calculate the volume and surface area of spheres, pyramids, cones and composite solids</u>			
	17.2s (q5-6 and 8), 17.2a (q1, 2 and 4-6)	N8	<u>Calculate exactly with multiples of π</u>			

19-20

Revision and Mock Exams

21	Direct and Inverse Proportion (Ratio, proportion and rates of change)	22.2s, 22.2a, 22.3s, 22.3a	R10	Solve problems involving direct and inverse proportion, including graphical and algebraic representations	1036 1048 1059	343 346	344 345 347 348
			R13	<u>Understand that</u> <u>is inversely proportional to y</u> <u>is equivalent to x^{-1}</u> <u>is proportional to $\frac{1}{y}$</u> <u>Interpret equations that describe direct and inverse proportion</u>			
			R14	<u>Recognise and interpret graphs that illustrate direct and inverse proportion</u>			
	Growth and decay (Ratio, proportion and rates of change)	22.4s, 22.4a	R16	<u>Set up, solve and interpret the answers in growth and decay problems, including compound interest</u>	1070 1238		94 95

22	Statistical measures (Statistics and Probability)	4.4s, 4.4a, 16.2s, 16.2a	S4 Interpret, analyse and compare the distributions of data sets from univariate empirical distributions through: appropriate measures of central tendency (median, mean, mode and modal class) spread (range, including consideration of outliers)	students should know and understand the terms: primary data, secondary data, discrete data and continuous data	1192 1202 1254 1201 1202	404 405 406 407 408 409 410 413 414 415 416 417 419 420	
	22	Scatter graphs (Statistics and Probability)	16.3s, 16.3a	S5 Apply statistics to describe a population			
S1 <u>Infer properties of populations or distributions from a sample, whilst knowing the limitations of sampling</u>							
			S6 Use and interpret scatter graphs of bivariate data Recognise correlation <u>and know that it does not indicate causation</u> <u>Draw estimated lines of best fit</u> <u>Make predictions</u> <u>Interpolate and extrapolate apparent trends whilst knowing the dangers of doing so</u>	know and understand the terms positive correlation, negative correlation, no correlation	1213 1250	453 454	
23	Vectors (Geometry and Measures)	19.4s 19.4a	G25 <u>Apply addition and subtraction of vectors, multiplication of vectors by a scalar, and diagrammatic and column representation of vectors</u>		1134 1135		622 623 624 625 626
24	Congruence and similarity (Geometry and Measures)	3.3s, 3.3a	G5 <u>Use the basic congruence criteria for triangles (SSS, SAS, ASA, RHS)</u>		1119 1148	608 609 610 611 637 638 639 640 641 642 643 648 649 650 651 652 653 654	612 613 614 644 645
			G6 <u>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</u>				
			G19 <u>Apply and use the concepts of congruence and similarity, including the relationships between lengths in similar figures</u>				

Summer Term	25	NUMBER - Tailored revision for each class based on weaknesses
	26	ALGEBRA - Tailored revision for each class based on weaknesses
	27	RATIO AND PROPORTION - Tailored revision for each class based on weaknesses
	28	STATISTICS AND PROBABILITY - Tailored revision for each class based on weaknesses
	29	GEOMETRY AND MEASURES - Tailored revision for each class based on weaknesses
	30	PROBLEM QUESTIONS
	31	EXAM PREPARATION/REVISION
	32	PAPER 1 (Non-Calculator) - DATE TBA
	33	PAPER 2 (Calculator) - DATE TBA
	34	PAPER 3 (Calculator) - DATE TBA
NOTE: BASIC SKILLS AND KNOWLEDGE SHOULD BE REVIEWED AS APPROPRIATE FOR THE CLASS.		