

8300 GCSE Mathematics Foundation

Number

Revision Checklist



Code	Topic	Dr Frost	Sparx	R	A	G
N1	Comparing and ordering numbers	71, 86	U600, U435, U947, U922	☐	☐	☐
N2	Calculating with integers	40-41, 50, 67, 91	U417, U735, U127, U453, U742, U548	☐	☐	☐
	Calculating with decimals	74, 122-127	U478, U293, U868	☐	☐	☐
	Multiplying and dividing with fractions	165-168	U475, U224, U544, U538	☐	☐	☐
N3	Using the order of operations	115, 196	U976	☐	☐	☐
N4	Working with multiples, factors and prime numbers	52-53, 94-97, 161-162	U211, U751, U529, U125, U236, U739, U250	☐	☐	☐
N5	Applying systematic methods for listing groups	380	U714	☐	☐	☐
N6	Calculating with powers and roots	88, 157	U851	☐	☐	☐
N7	Using the laws of indices	158, 194, 298, 358	U235, U694	☐	☐	☐
N8	Manipulating fractions and mixed numbers	99, 101, 116, 119-121	U163, U704, U646, U692, U439, U874	☐	☐	☐
	Adding and subtracting fractions and mixed numbers	56, 100, 102, 103, 117, 118	U736, U793	☐	☐	☐
N9	Working with numbers in standard form	301-304	U330, U534, U264, U290, U161	☐	☐	☐
N10	Converting between fractions and decimals	104, 172, 174	U888	☐	☐	☐
N11	Using ratio notation	-	U687	☐	☐	☐
	Making links between fractions and ratios	226	U176	☐	☐	☐
N12	Calculating with percentages	130, 214-221	U554, U349, U773, U671, U925, U286, U278	☐	☐	☐
	Converting between fractions and percentages	106, 172, 174	U888	☐	☐	☐

8300 GCSE Mathematics Foundation Number Revision Checklist



Code	Topic	Dr Frost	Sparx	R	A	G
N13	Using common units of measurement	-	U388, U102, U497, U248, U468	☐	☐	☐
N14	Using estimation, including to check the accuracy of calculations	188	U225	☐	☐	☐
N15	Understanding the use of rounding	37, 75, 187	U480, U298, U731, U965, U108	☐	☐	☐
N16	Using upper and lower bounds	310, 383	U657, U301	☐	☐	☐

8300 GCSE Mathematics Foundation

Algebra

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Code	Topic	Dr Frost	Sparx	R	A	G
A1	Understanding algebraic notation	190	U613	☐	☐	☐
A2	Substituting into expressions and formulae	136, 196, 197	U201, U585, U144	☐	☐	☐
A3	Understanding and using algebraic language and symbols	190	U613	☐	☐	☐
A4	Simplifying algebraic expressions by collecting like terms	191-193	U105	☐	☐	☐
	Expanding and factorising using a single bracket	252-253	U179, U365	☐	☐	☐
	Expanding and factorising using two brackets	299	U768, U178, U963	☐	☐	☐
	Using the laws of indices with algebraic terms	194, 298, 358, 394-395	U662	☐	☐	☐
A5	Understanding and using formulae in words and algebraic formulae	-	U585, U144	☐	☐	☐
	Rearranging algebraic formulae to change the subject	201, 260, 391	U675, U181, U191	☐	☐	☐
A6	Manipulating algebraic expressions to support statements	-	U613	☐	☐	☐
A7	Understanding and using function machines	133, 195, 432	M175, M428	☐	☐	☐
A8	Working with coordinates in four quadrants	152	U789, U933, U889	☐	☐	☐
A9	Plotting straight line graphs	267-269, 273	U741	☐	☐	☐
	Using $y = mx + c$ to identify parallel graphs	274	U377	☐	☐	☐
	Using $y = mx + c$ and two points, or one point and the gradient, to write the equation of a line	271-272	U477, U848	☐	☐	☐
A10	Working out the gradient of a straight line	270	U315, U669	☐	☐	☐
	Working out the y-intercept of a straight line	271	U315, U669	☐	☐	☐
A11	Identifying roots, intercepts and turning points from a quadratic graph	366, 368, 416	U667	☐	☐	☐
	Calculating roots of a quadratic graph algebraically	368	U228	☐	☐	☐
A12	Making links between different types of graphs and their equations	426-427	U989, U667, U310, U980, U593	☐	☐	☐
A14	Plotting and interpreting real-life graphs		U652, U862, U896, U681	☐	☐	☐
	Solving problems involving speed, distance, time and acceleration using graphs	327, 459	U403, U914, U462, U966, U937, U562	☐	☐	☐

8300 GCSE Mathematics Foundation

Algebra

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Code	Topic	Dr Frost	Sparx	R	A	G
A17	Solving linear equations with one unknown	199	U755, U325	☐	☐	☐
	Solving linear equations with one unknown on both sides	254	U870	☐	☐	☐
	Solving linear equations using graphs	-	U836	☐	☐	☐
A18	Solving quadratic equations by factorising	367, 462	U228	☐	☐	☐
	Solving quadratic equations using graphs	421	U601	☐	☐	☐
A19	Solving pairs of simultaneous equations using algebraic methods	276	U760, U757	☐	☐	☐
	Solving pairs of simultaneous equations using graphs	275	U836	☐	☐	☐
A21	Forming and solving equations (including simultaneous equations) from contexts	198, 276i-j, 418	U599, U137	☐	☐	☐
A22	Solving linear inequalities with one variable	339-342	U759, U738, U145, U337	☐	☐	☐
	Representing inequalities on a number line	309	U509	☐	☐	☐
A23	Writing the terms of a sequence from a rule given in words	203	U213	☐	☐	☐
	Writing the terms of a sequence from a given nth term	204	U530	☐	☐	☐
A24	Recognising and extending 'special' sequences (Square numbers, triangular numbers, ...)	202	U680	☐	☐	☐
	Recognising and extending 'other' sequences (Fibonacci, quadratic, geometric, ...)	202	U958	☐	☐	☐
A25	Writing the nth term of a linear sequence	205-206	U498, U978	☐	☐	☐

8300 GCSE Mathematics Foundation

Ratio

Revision Checklist



Code	Topic	Dr Frost	Sparx	R	A	G
R1	Converting between standard units of:	-	-	☐	☐	☐
	length (mm, cm, m, km)	107	U388	☐	☐	☐
	mass (g, kg)	107	U388	☐	☐	☐
	volume/capacity (ml, l)	107	U388	☐	☐	☐
	area/volume	323	U248, U468	☐	☐	☐
	time	59	U902	☐	☐	☐
	compound units (speed, density)	331	U151, U910	☐	☐	☐
R2	Using scale factors	128, 137	U257	☐	☐	☐
	Using scale diagrams and maps	283	U257	☐	☐	☐
R3	Writing one amount as a fraction of another	98f-g	U163	☐	☐	☐
R4	Simplifying ratios to their lowest terms	224	U687	☐	☐	☐
	Writing a ratio in the form 1 : n and n : 1	224d	U687	☐	☐	☐
R5	Sharing amounts in a given ratio	225	U577	☐	☐	☐
	Sharing amounts in contextual problems	225	U577	☐	☐	☐
R6	Comparing amounts using ratios and fractions	226	U687	☐	☐	☐
R7	Using proportion as the equality of ratios	-	U753	☐	☐	☐
R8	Relating ratios to fractions	226	U176	☐	☐	☐
	Relating ratios to equations	226	U676	☐	☐	☐
R9	Understanding the meaning of a percentage	105	U925	☐	☐	☐
	Calculating percentages, and percentage changes, using a multiplier	218-219, 221	U554, U349, U773, U671	☐	☐	☐
	Writing one amount as a percentage of another	214	U925	☐	☐	☐
	Comparing amounts using percentages	-	U594	☐	☐	☐
	Working with percentages greater than 100%	217	U554	☐	☐	☐
	Writing change as a percentage	215	U278	☐	☐	☐
	Calculating using percentages in reverse	222-223	U286	☐	☐	☐
	Calculating using simple interest	359a	U533	☐	☐	☐

8300 GCSE Mathematics Foundation

Ratio

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Code	Topic	Dr Frost	Sparx	R	A	G
R10	Solving problems involving direct proportion	176	U721	☐	☐	☐
	Solving problems involving inverse proportion	176n-p	U357	☐	☐	☐
R11	Working with speed, distance and time	325-326	U151	☐	☐	☐
	Working with density, mass and volume	328	U910	☐	☐	☐
	Working with pressure, force and area	329	U527	☐	☐	☐
	Working with rates, using the unitary method	330	U256	☐	☐	☐
R12	Solving problems with similar shapes involving length, area and volume	324	U551, U578	☐	☐	☐
	Solving problems involving trigonometric ratios and similarity	-	U605, U283, U545, U551	☐	☐	☐
R13	Understanding and using direct proportion algebraically	386	U640	☐	☐	☐
	Understanding and using inverse proportion algebraically	386	U364	☐	☐	☐
R14	Understanding that the gradient of a line represents a rate of change	461	U256, U862	☐	☐	☐
	Recognising graphs that show direct and inverse proportion	426c	U238	☐	☐	☐
R16	Working with repeated proportional changes using a multiplier and a power, including compound percentages	359, 361	U332, U988	☐	☐	☐

8300 GCSE Mathematics Foundation

Geometry

Revision Checklist



Code	Topic	Dr Frost	Sparx	R	A	G
G1	Using mathematical names and conventions with geometric figures	179	U121, U849	☐	☐	☐
G2	Using a straight edge and a pair of compasses to construct:	-	-	☐	☐	☐
	the perpendicular bisector of a line segment	284c	U245	☐	☐	☐
	a perpendicular to a given line from and at a given point	284e-f	U245	☐	☐	☐
	the bisector of a given angle	284d	U787	☐	☐	☐
	an accurate drawing of a sketch of a geometric figure	-	U187	☐	☐	☐
	Using constructions to solve loci problems	285	U820	☐	☐	☐
G3	Using angle facts to solve problems, including:	-	-	☐	☐	☐
	the sum of angles at a point, and on a straight line	110	U390	☐	☐	☐
	vertically opposite angles	147	U730	☐	☐	☐
	alternate and corresponding angles in parallel lines	262	U826, U329	☐	☐	☐
	the sum of angles in a triangle	149, 150	U628	☐	☐	☐
	the sum of angles in polygons, using the sum of angles in a triangle	261, 263	U427	☐	☐	☐
G4	Describing the properties of common quadrilaterals	151	U121, U732	☐	☐	☐
G5	Using the basic criteria for congruent triangles	290, 471	U866	☐	☐	☐
G6	Reasoning mathematically with geometric figures	-	U471, U887	☐	☐	☐
G7	Applying and describing the transformation of geometric figures using:	-	-	☐	☐	☐
	reflection	81, 153, 278, 279	U799	☐	☐	☐
	translation	82, 154, 374-375	U196	☐	☐	☐
	rotation	281, 282	U696	☐	☐	☐
	enlargement by positive, integer scale factors	294, 295	U519	☐	☐	☐
	enlargement by positive, fractional scale factors	296, 297	U519	☐	☐	☐
G9	Identifying and naming the parts of a circle	317	U767	☐	☐	☐
G11	Solving problems using coordinates	152, 265, 266	U889, U933	☐	☐	☐
G12	Identifying and naming common 3D solids	32a, 142	U719	☐	☐	☐
	Identifying and naming the parts of a 3D solid	32b	U719	☐	☐	☐
G13	Constructing plans and elevations of 3D solids	228	U743	☐	☐	☐
G14	Using standard units of measure (length, area, volume/capacity, mass, time, money, etc)	107	U102, U388, U497	☐	☐	☐

8300 GCSE Mathematics Foundation

Geometry

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Code	Topic	Dr Frost	Sparx	R	A	G
G15	Measuring and drawing lines angles	15c, 109, 111	U447	☐	☐	☐
	Interpreting maps and scale drawings	283	U257	☐	☐	☐
	Using bearings to describe direction	264, 283j	U525, U107	☐	☐	☐
G16	Knowing and applying formulae to calculate using:	-	-	☐	☐	☐
	area of triangles, parallelograms, trapezia	139-140, 181-185	U945, U424, U265, U343	☐	☐	☐
	volume of cuboids	145, 230	U786	☐	☐	☐
	volume of prisms	231	U174	☐	☐	☐
	volume of cylinders	233	U915	☐	☐	☐
G17	Knowing and applying formulae to calculate using:	-	-	☐	☐	☐
	circumference of circles	209	U604	☐	☐	☐
	area of circles	210	U950	☐	☐	☐
	Calculating the area and perimeter of compound shapes, involving circles	211-213	U970, U575, U351, U226	☐	☐	☐
	Calculating the surface area and volume of spheres, pyramids, cones and composite solids, using given formulae	232, 234, 405-408	U929, U259, U871, U464, U523, U893, U771, U561, U484, U116, U617, U426, U543	☐	☐	☐
G18	Calculating using the lengths of arcs and the area of sectors	318-319	U221, U373	☐	☐	☐
G19	Understanding the effect of transformations, applying this to congruence and similarity	129, 291-292	U790, U551, U112	☐	☐	☐
G20	Knowing and using Pythagoras' Theorem to calculate lengths in right-angled triangles	288-289, 338	U385, U828	☐	☐	☐
	Knowing and using the trigonometric ratios to calculate lengths in right-angled triangles	321	U605, U283	☐	☐	☐
	Knowing and using the trigonometric ratios to calculate angles in right-angled triangles	322	U545	☐	☐	☐
G21	Knowing the exact values for specific trigonometric ratios	412	U627	☐	☐	☐
G24	Describing translation in 2D using vectors	374-375	U632	☐	☐	☐
G25	Calculating using 2D column vectors	372-373	U903, U564	☐	☐	☐

8300 GCSE Mathematics Foundation

Probability

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Code	Topic	Dr Frost	Sparx	R	A	G
P1	Constructing and interpreting two-way tables, frequency tables and frequency trees	238, 241, 248e-f,g-h, 357a-b	U981, U280	☐	☐	☐
	Comparing relative frequencies to theoretical probabilities	251	U580, U166	☐	☐	☐
P2	Finding probabilities from lists and tables	-	U104, U510	☐	☐	☐
	Understanding the idea of relative frequency as an estimate of theoretical probability	251	U580	☐	☐	☐
	Understanding the concept of randomness	-	U408	☐	☐	☐
P3	Understanding and using the 0 – 1 probability scale	247	U803, U408	☐	☐	☐
	Estimating probabilities using relative frequency	251a	U580	☐	☐	☐
P4	Understanding and using the sum of the probabilities of mutually exclusive events (= 1)	250	U683	☐	☐	☐
P5	Understanding the benefit of conducting a greater number of trials in an experiment	251b	U166	☐	☐	☐
P6	Completing tables to show outcomes of an event	-	U104	☐	☐	☐
	Completing tree diagrams to show outcomes and probabilities	353-354	U558, U729	☐	☐	☐
	Constructing and interpreting Venn diagrams	242	U476, U748	☐	☐	☐
	Understanding and using set notation used with reference to Venn diagrams	243	U748, U296	☐	☐	☐
P7	Listing the outcomes to events in systematic ways	249	U714	☐	☐	☐
	Using and interpreting two-way tables	238	U981	☐	☐	☐
	Using and interpreting frequency trees	241	U280	☐	☐	☐
	Calculating probabilities from tables	-	U104, U981	☐	☐	☐
P8	Calculating probabilities using the 'and' and 'or' rules	353, 354	U558, U729, U683	☐	☐	☐
	Understanding whether two events are 'independent' or 'dependent'	353, 354	U558, U729	☐	☐	☐
	Using a tree diagram to calculate probabilities	353, 354	U558, U729	☐	☐	☐

8300 GCSE Mathematics Foundation

Statistics

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Code	Topic	Dr Frost	Sparx	R	A	G
S1	Analysing sets of data for patterns and outliers	114	U193	☐	☐	☐
	Understanding the benefits and limitations of sampling	345	U322, U162	☐	☐	☐
S2	Constructing and interpreting:	-	-	☐	☐	☐
	frequency tables	236, 237, 311	U981	☐	☐	☐
	bar charts, vertical line charts and frequency diagrams	65	U363, U557, U840	☐	☐	☐
	pictograms	31	U506	☐	☐	☐
	pie charts	131, 246	U508, U172	☐	☐	☐
	time series graphs	400a-d	U590, U193	☐	☐	☐
	two-way tables	238	U981	☐	☐	☐
S4	Calculating the mean, median, mode and range for a list of data	132, 207, 208	U526, U456, U260, U291, U569	☐	☐	☐
	Estimating the mean, and finding the interval containing the median, of grouped data	312, 313	U877	☐	☐	☐
S5	Using the mean, median, mode and range, as well as diagrams to describe sets of data	396f	U717, U854, U520	☐	☐	☐
S6	Using and interpreting scatter diagrams	244	U199, U277	☐	☐	☐
	Recognising correlation and describing relationships from scatter diagrams	244	U277	☐	☐	☐
	Drawing lines of best fit and estimating unknown values	245	U128	☐	☐	☐