

Year	Term	Week	Chapter	Ref	Lesson
Year 2	Autumn Term	1-2	9 Measures and accuracy (Number)	9.1	Estimation and approximation
				9.2	Calculator methods
				9.3	Measures and accuracy
		3-4			Review
					Assessment 9
				10.1	Solving linear equations

Year 2

Autumn Term

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5-6	10 Equations and inequalities (Algebra)	10.2	Quadratic equations	
		10.3	Simultaneous equations	
10.4		Approximate solutions		
10.5		Inequalities		
Review				
7-8	10 Equations and inequalities (Algebra)	Assessment 10		
		Starting the business		
9-10		Lifeskills 2	11.1	Circles 1
			11.2	Circles 2
11-12			11 Circles and constructions (Geometry)	11.3

# Year 2

## Spring Term

## Autumn Ter

13-14		11.4	Constructions and loci
			Review
			Assessment 11
15-16	12 Ratio and proportion (Ratio and proportion)	12.1	Proportion
			Ratio and scales
17-18		12.2	12.2
			12.3
			Percentage change
			Review
			Assessment 12
19-20	13 Factors, powers and roots (Number)	13.1	Factors and multiples
			13.2
			Powers and roots

Year 2

Spring Term

Spring Term

21-22		13.3	Surds
			Review
			Assessment 13
23-24	14 Graphs 1 (Algebra)	14.1	Equation of a straight line
		14.2	Linear and quadratic functions
		14.3	Properties of quadratic functions
		14.4	Kinematic graphs
			Review
			Assessment 14

Year 2

Summer Term

25-26

15.1 3D shapes

27-28

15 Working in 3D  
(Geometry)

15.2 Volume of a prism

15.3 Volume and surface area

Review

Assessment 15

Getting ready

29-30

Lifeskills 3

16.1 Frequency diagrams

Year 2

Summer Term

31-32	16 Handling data 2 (Statistics)	16.2	Averages and spread 2
		16.3	Box plots and cumulative frequency graphs
16.4		Scatter graphs and correlation	
16.5		Time series	
		Review	
		Assessment 16	
33-34		17.1	Calculating with roots and indices

<b>Summer Term</b>	<b>35-36</b>	17 Calculations 2 (Number)	17.2	Exact calculations
	<b>37-38</b>		17.3	Standard form
				Review
				Assessment 17

GCSE Ref	GCSE Objective statement	MyMaths
N2 [c,f] N9 N14 [b,c] N15 [b]	Apply the four operations (+, -, ×, ÷), including formal written methods, to integers, decimals and simple fractions (proper and improper), and mixed numbers – all both positive and negative; understand and use place value (e.g. when working with very large or very small numbers, and when calculating with decimals). Calculate with and interpret standard form $A \times 10^n$ , where $1 \leq A < 10$ and $n$ is an integer. Estimate answers; check calculations using approximation and estimation, including answers obtained using technology. Round numbers and measures to an appropriate degree of accuracy (e.g. to a specified number of decimal places or significant figures). Use inequality notation to specify simple error intervals due to truncation or rounding.	1057 1005 1043
N3 N14 R1 [c,d]	Recognise and use relationships between operations, including inverse operations (e.g. cancellation to simplify calculations and expressions; use conventional notation for priority of operations, including brackets, powers, roots and reciprocals). Estimate answers; check calculations using approximation and estimation, including answers obtained using technology. 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.	1043 1932 1933
N13 [d] N15 N16 R1 [c,d] R11 [b,c,e] G14 [b,f]	Use standard units of mass, length, time, money and other measures (including standard compound measures) using decimal quantities where appropriate. Round numbers and measures to an appropriate degree of accuracy (e.g. to a specified number of decimal places or significant figures). Use inequality notation to specify simple error intervals due to truncation or rounding. Apply and interpret limits of accuracy, including upper and lower bounds. 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. Use standard units of measure and related concepts (length, area, volume/capacity, mass, time, money, etc.)	1121 1246 1067 1006
N3 A3 [c-e,g] A5 A17 [c] A21	Recognise and use relationships between operations, including inverse operations (e.g. cancellation to simplify calculations and expressions; use conventional notation for priority of operations, including brackets, powers, roots and reciprocals). Understand and use the concepts and vocabulary of expressions, equations, formulae, identities, inequalities, terms and factors. Understand and use standard mathematical formulae; rearrange formulae to change the subject. Solve linear equations in one unknown algebraically (including those with the unknown on both sides of the equation); find approximate solutions using a graph. Translate simple situations or procedures into algebraic expressions or formulae; derive an equation (or two simultaneous equations), solve the equation(s) and interpret the solution.	1182 1928 1929 1319

A4 [b,h]	Simplify and manipulate algebraic expressions (including those involving surds and algebraic fractions) by: <ul style="list-style-type: none"> <li>- collecting like terms</li> <li>- multiplying a single term over a bracket</li> <li>- taking out common factors</li> <li>- expanding products of two or more binomials</li> <li>- factorising quadratic expressions of the form <math>x^2 + bx + c</math>, including the difference of two squares; factorising quadratic expressions of the form <math>ax^2 + bx + c</math></li> <li>- simplifying expressions involving sums, products and powers, including the laws of indices.</li> </ul>	1181 1160 1169 1185
A18 [e]	Solve quadratic equations (including those that require rearrangement) algebraically by factorising; by completing the square and by using the quadratic formula; find approximate solutions using a graph.	
A18	Solve quadratic equations (including those that require rearrangement) algebraically by factorising; by completing the square and by using the quadratic formula; find approximate solutions using a graph.	1236 1319 1177 1174
A19	Solve two simultaneous equations in two variables (linear/linear or linear/quadratic) algebraically; find approximate solutions using a graph.	
A21	Translate simple situations or procedures into algebraic expressions or formulae; derive an equation (or two simultaneous equations), solve the equation(s) and interpret the solution.	
A20	Find approximate solutions to equations numerically using iteration.	1057
A3 [a-d,f,g]	Understand and use the concepts and vocabulary of expressions, equations, formulae, identities, inequalities, terms and factors.	1161 1162
A22	Solve linear inequalities in one or two variable(s), and quadratic inequalities in one variable; represent the solution set on a number line, using set notation and on a graph.	1189 1163
G9 [b]	Identify and apply circle definitions and properties, including: centre, radius, chord, diameter, circumference, tangent, arc, sector and segment.	1083 1088
G17 [d,e]	Know the formulae: circumference of a circle = $2\pi r = \pi d$ , area of a circle = $\pi r^2$ ; calculate: perimeters of 2D shapes, including circles; areas of circles and composite shapes. Surface area and volume of spheres, pyramids, cones and composite solids.	
G9	Identify and apply circle definitions and properties, including: centre, radius, chord, diameter, circumference, tangent, arc, sector and segment.	1118
G17 [d,e]	Know the formulae: circumference of a circle = $2\pi r = \pi d$ , area of a circle = $\pi r^2$ ; calculate: perimeters of 2D shapes, including circles; areas of circles and composite shapes. Surface area and volume of spheres, pyramids, cones and composite solids.	
G18	Calculate arc lengths, angles and areas of sectors of circles.	
G9	Identify and apply circle definitions and properties, including: centre, radius, chord, diameter, circumference, tangent, arc, sector and segment.	1087 1142 1321
G10	Apply and prove the standard circle theorems concerning angles, radii, tangents and chords, and use them to prove related results.	

G1 [b-d]	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.	1090 1089 1147
G2	Use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle); use these to construct given figures and solve loci problems; know that the perpendicular distance from a point to a line is the shortest distance to the line.	
R3	Express one quantity as a fraction of another, where the fraction is less than 1 or greater than 1.	1037
R9 [d,e,j-m]	Define percentage as 'number of parts per hundred'; interpret percentages and percentage changes as a fraction or a decimal, and interpret these multiplicatively; express one quantity as a percentage of another; compare two quantities using percentages; work with percentages greater than 100%; solve problems involving percentage change, including percentage increase/decrease and original value problems, and simple interest including in financial mathematics.	1015
N11	Identify and work with fractions in ratio problems.	1036
R2	Use scale factors, scale diagrams and maps.	1038
R4	Use ratio notation, including reduction to simplest form.	1039
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, concentrations).	1103
R6	Express a multiplicative relationship between two quantities as a ratio or a fraction.	
R7	Understand and use proportion as equality of ratios.	
R9	Define percentage as 'number of parts per hundred'; interpret percentages and percentage changes as a fraction or a decimal, and interpret these multiplicatively; express one quantity as a percentage of another; compare two quantities using percentages; work with percentages greater than 100%; solve problems involving percentage change, including percentage increase/decrease and original value problems, and simple interest including in financial mathematics.	1060 1073 1237 1934
N4	Use the concepts and vocabulary of prime numbers, factors (divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation theorem.	1034 1044 1032
N5 [b]	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).	
P6 [a,c]	Enumerate sets and combinations of sets systematically, using tables, grids, Venn diagrams, and tree diagrams.	
N6	Use positive integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5; estimate powers and roots of any given positive number.	1053 1924 1033

N8 [a, c]	Calculate exactly with fractions, surds and multiples of $\pi$ ; simplify surd expressions involving squares (e.g. $\sqrt{12} = \sqrt{4 \times 3} = \sqrt{4} \times \sqrt{3} = 2\sqrt{3}$ ) and rationalise denominators.	1064 1065 1924
A5	Understand and use standard mathematical formulae; rearrange formulae to change the subject.	1396 1153
A8	Work with coordinates in all four quadrants.	1314
A9 [a]	Plot graphs of equations that correspond to straight-line graphs in the coordinate plane; use the form $y = mx + c$ to identify parallel and perpendicular lines; find the equation of the line through two given points, or through one point with a given gradient.	1311
A10	Identify and interpret gradients and intercepts of linear functions graphically and algebraically.	
A17 [a,b]	Solve linear equations in one unknown algebraically (including those with the unknown on both sides of the equation); find approximate solutions using a graph.	
R6	Express a multiplicative relationship between two quantities as a ratio or a fraction.	
R8	Relate ratios to fractions and to linear functions.	
R14 [b,c]	Interpret the gradient of a straight line graph as a rate of change; recognise and interpret graphs that illustrate direct and inverse proportion.	
A9 [b-e]	Plot graphs of equations that correspond to straight-line graphs in the coordinate plane; use the form $y = mx + c$ to identify parallel and perpendicular lines; find the equation of the line through two given points, or through one point with a given gradient.	1312 1180
A12 [c-f]	Recognise, sketch and interpret graphs of linear functions, quadratic functions, simple cubic functions, the reciprocal function $y = 1/x$ with $x \neq 0$ , exponential functions $y = x^k$ for positive values of $k$ , and the trigonometric functions (with arguments in degrees) $y = \sin x$ , $y = \cos x$ and $y = \tan x$ for angles of any size.	
A11	Identify and interpret roots, intercepts, turning points of quadratic functions graphically; deduce roots algebraically and turning points by completing the square.	1185 1169 1180
A12 [a,c-f]	Recognise, sketch and interpret graphs of linear functions, quadratic functions, simple cubic functions, the reciprocal function $y = 1/x$ with $x \neq 0$ , exponential functions $y = x^k$ for positive values of $k$ , and the trigonometric functions (with arguments in degrees) $y = \sin x$ , $y = \cos x$ and $y = \tan x$ for angles of any size.	
A18 [a-d]	Solve quadratic equations (including those that require rearrangement) algebraically by factorising; by completing the square and by using the quadratic formula; find approximate solutions using a graph.	
A14 [b,c]	Plot and interpret graphs (including reciprocal graphs and exponential graphs) and graphs of non-standard functions in real contexts, to find approximate solutions to problems such as simple kinematic problems involving distance, speed and acceleration.	1322 1323

G1 [b-e]	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.	1078 1106 1098
G12	Identify properties of the faces, surfaces, edges and vertices of: cubes, cuboids, prisms, cylinders, pyramids, cones and spheres.	
G13	Construct and interpret plans and elevations of 3D shapes.	
G16 [d]	Know and apply formulae to calculate: area of triangles, parallelograms, trapezia; volume of cuboids and other right prisms (including cylinders).	
R1 [a,c,d]	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.	1137 1138 1139
R11 [a-c,e]	Use compound units such as speed, rates of pay, unit pricing, density and pressure.	1246
G12	Identify properties of the faces, surfaces, edges and vertices of: cubes, cuboids, prisms, cylinders, pyramids, cones and spheres.	
G14 [e,f]	Use standard units of measure and related concepts (length, area, volume/capacity, mass, time, money, etc.)	
G16	Know and apply formulae to calculate: area of triangles, parallelograms, trapezia; volume of cuboids and other right prisms (including cylinders).	
G17 [b]	Know the formulae: circumference of a circle = $2\pi r = \pi d$ , area of a circle = $\pi r^2$ ; calculate: perimeters of 2D shapes, including circles; areas of circles and composite shapes. Surface area and volume of spheres, pyramids, cones and composite solids.	
G12	Identify properties of the faces, surfaces, edges and vertices of: cubes, cuboids, prisms, cylinders, pyramids, cones and spheres.	1107 1122
G17 [b,c]	Know the formulae: circumference of a circle = $2\pi r = \pi d$ , area of a circle = $\pi r^2$ ; calculate: perimeters of 2D shapes, including circles; areas of circles and composite shapes. Surface area and volume of spheres, pyramids, cones and composite solids.	1136
G19 [b]	Apply the concepts of congruence and similarity, including the relationships between lengths, areas and volumes in similar figures.	
S2 [d-g]	Interpret and construct tables, charts and diagrams, including frequency tables, bar charts, pie charts and pictograms for categorical data, vertical line charts for ungrouped discrete numerical data, tables and line graphs for time series data and know their appropriate use.	1196 1197
S3 [e]	Construct and interpret diagrams for grouped discrete data and continuous data, i.e. histograms with equal and unequal class intervals and cumulative frequency graphs, and know their appropriate use.	
S4 [b,c,g-n]	Interpret, analyse and compare the distributions of data sets from univariate empirical distributions through: - appropriate graphical representation involving discrete, continuous and grouped data, including box plots - appropriate measures of central tendency (median, mean, mode and modal class) and spread (range, including consideration of outliers, quartiles and inter-quartile range).	

S2 [c-g]	Interpret and construct tables, charts and diagrams, including frequency tables, bar charts, pie charts and pictograms for categorical data, vertical line charts for ungrouped discrete numerical data, tables and line graphs for time series data and know their appropriate use.	1201 1202 1254 1255
S4 [d-g,k-n]	Interpret, analyse and compare the distributions of data sets from univariate empirical distributions through: - appropriate graphical representation involving discrete, continuous and grouped data, including box plots. - appropriate measures of central tendency (median, mean, mode and modal class) and spread (range, including consideration of outliers, quartiles and inter-quartile range).	
S5	Apply statistics to describe a population.	
S3 [c,d]	Construct and interpret diagrams for grouped discrete data and continuous data, i.e. histograms with equal and unequal class intervals and cumulative frequency graphs, and know their appropriate use.	1194 1195 1333
S4 [i,j]	Interpret, analyse and compare the distributions of data sets from univariate empirical distributions through: - appropriate graphical representation involving discrete, continuous and grouped data, including box plots. - appropriate measures of central tendency (median, mean, mode and modal class) and spread (range, including consideration of outliers, quartiles and inter-quartile range).	
S6	Use and interpret scatter graphs of bivariate data; recognise correlation and know that it does not indicate causation; draw estimated lines of best fit; make predictions; interpolate and extrapolate apparent trends whilst knowing the dangers of so doing.	1213 1250
S2 [b-f]	Interpret and construct tables, charts and diagrams, including frequency tables, bar charts, pie charts and pictograms for categorical data, vertical line charts for ungrouped discrete numerical data, tables and line graphs for time series data and know their appropriate use.	1198
N7 A4 [b,e-l]	Calculate with roots, and with integer and fractional indices. Simplify and manipulate algebraic expressions (including those involving surds and algebraic fractions) by: - collecting like terms - multiplying a single term over a bracket - taking out common factors - expanding products of two or more binomials - factorising quadratic expressions of the form $x^2 + bx + c$ , including the difference of two squares; factorising quadratic expressions of the form $ax^2 + bx + c$ - simplifying expressions involving sums, products and powers, including the laws of indices.	1033 1045 1301 1924

<p>N8</p> <p>A4 [c,f,h-o]</p>	<p>Calculate exactly with fractions, surds and multiples of <math>\pi</math>; simplify surd expressions involving squares (e.g. <math>\sqrt{12} = \sqrt{4 \times 3} = \sqrt{4} \times \sqrt{3} = 2\sqrt{3}</math>) and rationalise denominators.</p> <p>Simplify and manipulate algebraic expressions (including those involving surds and algebraic fractions) by:</p> <ul style="list-style-type: none"> <li>- collecting like terms</li> <li>- multiplying a single term over a bracket</li> <li>- taking out common factors</li> <li>- expanding products of two or more binomials</li> <li>- factorising quadratic expressions of the form <math>x^2 + bx + c</math>, including the difference of two squares; factorising quadratic expressions of the form <math>ax^2 + bx + c</math></li> <li>- simplifying expressions involving sums, products and powers, including the laws of indices.</li> </ul>	<p>1074</p> <p>1065</p>
<p>N2 [c,f]</p> <p>N9</p>	<p>Apply the four operations (+, -, <math>\times</math>, <math>\div</math>), including formal written methods, to integers, decimals and simple fractions (proper and improper), and mixed numbers – all both positive and negative; understand and use place value (e.g. when working with very large or very small numbers, and when calculating with decimals).</p> <p>Calculate with and interpret standard form <math>A \times 10^n</math>, where <math>1 \leq A &lt; 10</math> and <math>n</math> is an integer.</p>	<p>1049</p> <p>1050</p> <p>1051</p>