

Year 7	Half-term 1			Half-term 2		
Autumn	Algebraic Thinking			Place Value and Proportion		
	Sequences	Understand and use algebraic notation	Equality and equivalence	Place value ordering integers and decimals	Fraction, decimal and percentage equivalence	
	Describe and continue a sequence given diagrammatically	Given a numerical input, find the output of a single function machine	Understand the meaning of equality	Recognise the place value of any digit in an integer up to one billion	Represent tenths and hundredths as diagrams	
	Predict and check the next term(s) of a sequence	Use inverse operations to find the input given the output	Understand and use fact families, numerically and algebraically	Understand and write integers up to one billion in words and figures	Represent tenths and hundredths on number lines	
	Represent sequences in tabular and graphical forms	Use diagrams and letters to generalise number operations	Solve one-step linear equations involving addition and subtraction	Work out intervals on a number line	Interchange between fractional and decimal number lines	
	Recognise the difference between linear and non-linear sequences	Use diagrams and letters with single function machines	Solve one-step linear equations involving multiplication and division	Position integers on a number line	Convert between fractions and decimals - tenths and hundredths	
	Continue numerical linear sequences	Find the function machine given a simple expression	Understand the meaning of like and unlike terms	Round intervals to the nearest power of 10	Convert between fractions and decimals - fifths and quarters	
	Continue numerical non-linear sequences	Substitute values into single operation expressions	Understand the meaning of equivalence	Compare two numbers using =, ≠, <, >, ≤ and ≥	H - Convert between fractions and decimals - eighths and thousandths	
	Explain the term-to-term rule of numerical sequences in words	Find numerical inputs and outputs for a series of two function machines	Simplify algebraic expressions by collecting the like term using the ≡	Order a list of integers	Understand the meaning of percentage using a hundred square	
	H - Find missing numbers within sequences	Use diagrams and letters with a series of two function machines		Find the range of a set of numbers	Convert fluently between simple fractions, decimals and percentages	
		Find the function machine given a two-step expression		Find the median of a set of numbers	Use and interpret pie charts	
		Substitute values into two-step expressions		Understand place value for decimals	Represent any fraction as a diagram	
		Generate sequences given an algebraic rule		Position decimals on a number line	Represent fractions on number lines	
		Represent one- and two-step functions graphically		Compare and order any number up to one billion	Identify and use simple equivalent fractions	
				Round a number to 1 significant figure	Simplify fractions (no small step on this - but this is in the assessment)	
			H - Write 10, 100, 1000 etc as powers of 10	Understand fractions as division		
			H - Write positive integers in the form $A \times 10^n$	Convert fluently between FDP		
			H - Investigate negative powers of 10	H - Explore fractions above one, decimals and percentages		
			H - Write decimals in the form $A \times 10^n$			
Year 7	Half-term 3			Half-term 4		
Spring	Applications			Directed Number	Fractional Thinking	
	Solving problems with addition and subtraction	Solving problems with multiplication and division	Fractions & percentages of amounts	Operations and equations with directed number	Addition and subtraction of fractions	
	Properties of addition and subtraction	Properties of multiplication and division	Find a fraction of a given amount	Understand and use representations of directed numbers	Understand representations of fractions	
	Mental strategies for addition and subtraction	Understand and use factors	Use a given fraction to find the whole and/or other fractions	Order directed numbers using lines and appropriate symbols	Convert between mixed numbers and fractions	
	Use formal methods for addition of integers	Understand and use multiples		Perform calculations that cross zero	Add and subtract unit fractions with the same denominator	
	Use formal methods for addition of decimals	Multiply and divide integers and decimals by powers of 10	Find a percentage of a given amount using mental methods	Add directed numbers	Add and subtract fractions with the same denominator	
	Use formal methods for subtraction of integers	H - Multiply by 0.1 and 0.01		Subtract directed numbers	Add and subtract fractions from integers expressing the answer as a single fraction	
	Use formal methods for subtraction of decimals	Convert metric units	Find a percentage of a given amount using a calculator	Multiplication of directed numbers	Understand and use equivalent fractions	
	Choose the most appropriate method: mental strategies, formal written or	Use formal methods to multiply integers		Multiplication and division of directed numbers	Add and subtract fractions where denominators share a simple common multiple	
	Solve problems in the context of perimeter	Use formal methods to multiply decimals	H - Solve problems with fractions greater than 1 and percentages greater than 100%	Use a calculator for directed number calculations	Add and subtract fractions with any denominator	
	Solve financial maths problems	Use formal methods to divide integers		Evaluate algebraic expressions with directed number	Add and subtract improper fractions and mixed numbers	
	Solve problems involving tables and timetables	Use formal methods to divide decimals		Introduction to two-step equations	Use fractions in algebraic contexts	
	Solve problems with frequency trees	Understand and use order of operations		Solve two-step equations	Use equivalence to add and subtract decimals and fractions	
	Solve problems with bar charts and line charts	Solve problems using the area of rectangles and parallelograms		Use order of operations with directed numbers	H - Add and subtract simple algebraic fractions	
	H - Add and subtract numbers given in standard form	Solve problems using the area of triangles		H - Understand that positive numbers have more than one square root	H - Explore higher powers and roots	
	H - Solve problems using the area of trapezia					
	Solve problems using the mean					
	H - Explore multiplication and division in algebraic expressions					
Year 7	Half-term 5			Half-term 6		
Summer	Lines and Angles			Reasoning with Number		
	Constructing, measuring and using geometric notation	Developing geometric reasoning		Developing number sense	Sets and probability	Prime numbers and proof
	Understand and use letter and labelling conventions including those for geometric figures	Understand and use the sum of angles at a point		Know and use mental addition and subtraction strategies for integers	Identify and represent sets	Find and use multiples
	Draw and measure line segments including geometric figures	Understand and use the sum of angles on a straight line		Know and use mental multiplication and division strategies for integers	Interpret and create Venn diagrams	Identify factors of numbers and expressions
	Understand angles as a measure of turn	Understand and use the equality of vertically opposite angles		Know and use mental strategies for decimals	Understand and use the intersection of sets	Recognise and identify prime numbers
	Classify angles	Know and apply the sum of angles in a triangle		Know and use mental strategies for fractions	Understand and use the union of sets	Recognise square and triangular numbers
	Measure angles up to 180 degrees.	Know and apply the sum of angles in a quadrilateral		Use factors to simplify calculations	H - Understand and use the complement of sets	Find common factors of a set of numbers including the HCF
	Draw angles up to 180 degrees.	Solve angle problems using properties of triangles and quadrilaterals		Use estimation as a method for checking mental calculations	Know and use the vocabulary of probability	Find common multiples of a set of numbers including the LCM
	Draw and measure angles between 180 and 360 degrees	Solve complex angle problems		Use known number facts to derive other facts	Generate sample spaces for single events	Write a number as a product of its prime factors
	Identify parallel and perpendicular lines.	H - Find and use the angle sum of any polygon		Use known algebraic facts to derive other facts	Calculate the probability of a single event	H - Use a Venn diagram to calculate the HCF and LCM
	Recognise types of triangles	H - Investigate angles in parallel lines		Know when to use a mental strategy, formal written method or a calculator	Understand and use the probability scale	Make and test conjectures
	Identify polygons up to decagons.	H - Understand and use parallel line angle rules			Know that the sum of probabilities of all possible outcomes is 1	Use counterexamples to disprove a conjecture
Recognise types of quadrilaterals	H - Use known facts to obtain simple proofs					

Construct triangles using SSS
Construct triangles using SSS, SAS and ASA
Construct more complex polygons
Interpret simple pie charts using proportion
Interpret pie charts using a protractor
Draw pie charts

Year 8		Half-term 1			Half-term 2		
Autumn	Proportional Reasoning			Representations			
	Ratio and scale	Multiplicative change	Multiplying and dividing fractions	Working in the Cartesian plane	Representing data	Tables & Probability	
	Understanding the meaning and representation of ratio	Solve problems involving direct proportion	Represent multiplication of fractions	Work with coordinates in all four quadrants	Draw and interpret scatter graphs	Construct sample spaces for 1 or more events	
	Understand and use ratio notation	Explore conversion graphs	Multiply a fraction by an integer	Identify and draw lines that are parallel to the axes	Understand and describe linear correlation		
	Solve problems involving ratios of the form 1:n or n:1	Convert between currencies	Find the product of a pair of unit fractions	Recognise and use the line $y=x$	Draw and use line of best fit (1)	Find probabilities from sample space	
	Solve proportional problems involving the ratio m:n	H - Explore direct proportion graphs	Find the product of a pair of any fractions	Recognise and use lines of the form $y=kx$	Draw and use line of best fit (2)		
	Divide a value into a given ratio	Explore relationships between similar shapes	Divide an integer by a fraction	Link $y=kx$ to direct proportion problems	Identify non-linear relationships	Find probabilities from two-way tables	
	Express ratios in their simplest integer form	Understand scale factors as multiplicative relationships	Divide a fraction by a unit fraction	H - Explore the gradient of the line $y=kx$	Identify different types of data		
	H - Express ratios in the form 1:n	Draw and interpret scale diagrams	Understand and use the reciprocal	Recognise and use lines of the form $y=x+a$	Read and interpret ungrouped frequency tables	Find probabilities from Venn diagrams	
	Compare ratios and related fractions	Interpret maps using scale factors and ratio	Divide any pair of fractions	Explore graphs with negative gradients ($y=-kx$, $y=a-x$, $x+y=a$)	Read and interpret grouped frequency tables		
Understand pi as the ratio between diameter and circumference		H - Multiply and divide improper and mixed fractions	Link graphs to linear sequences	Represent grouped discrete data	H - Use the product rule for finding the total number of possible outcomes		
H - Understand gradient of a line as a ratio		H - Multiply and divide algebraic fractions	Plot graphs of the form $y=mx+c$	Represent continuous data grouped into equal classes			
			H - Explore non-linear graphs	Represent data in two-way tables			
			H - Find the midpoint of a line segment				
Year 8		Half-term 3			Half-term 4		
Spring	Algebraic Techniques			Developing Number			
	Brackets, equations and inequalities		Sequences	Indices	Fractions and percentages	Standard index form	Number sense
	Form algebraic expressions		Generate sequences given a rule in words	Adding and subtracting expressions with indices	Convert between decimals and percentages more than 1/100%	Work with numbers greater than 1 in standard form	Round numbers to a number of decimal places
	Use directed number with algebra				Percentage decrease with a multiplier	Investigate negative powers of 10	
	Multiply out a single bracket		Generate sequences given a simple algebraic rule	Simplifying algebraic expressions by multiplying indices	Calculate percentage increase and decrease using a multiplier	Work with numbers between 0 and 1 in standard form	H - Understand and use error interval notation
	Factorise into a single bracket				Express one number as a fraction or a percentage of another without a calculator	Compare and order numbers in standard form	
	Expand multiple single brackets and simplify		Generate sequences given a complex algebraic rule	Simplifying algebraic expressions by dividing indices	Express one number as a fraction or a percentage of another using calculator methods	Mentally calculate with numbers in standard form	Calculate with money
	H - Expand a pair of binomials				Work with percentage change	Add and subtract numbers in standard form	
	Solve equations, including with brackets		H - Find the rule for the nth term of a linear sequence	Using the addition law for indices	Choose appropriate methods to solve percentage problems	Multiply and divide numbers in standard form	Convert metric units of weight and capacity
	Form and solve equations with brackets				H - Find the original amount given the percentage less than 100%	Use a calculator to work with numbers in standard form	
Understand and solve simple inequalities				H - Find the original amount given the percentage more than 100%	H - Understand and use negative indices	H - Convert metric units of area	
Form and solve inequalities				H - Choose appropriate methods to solve complex percentage problems	H - Understand and use fractional indices		
H - Solve equations and inequalities with unknowns on both sides						H - Convert metric units of volume	
H - Form and solve equations and inequalities with unknowns on both sides							
Identify and use formulae, expressions, identities and equations			Using the addition and subtraction laws for indices			Solve problems involving time and the calendar	
			H - Exploring powers of powers				
Year 8		Half-term 5			Half-term 6		
Summer	Developing Geometry			Reasoning with Data			
	Angles in parallel lines and polygons	Area of trapezia and circles	Line symmetry and reflection	The data handling cycle		Measures of location	
	REVIEW STEP - Understand basic angle rules and notation	Calculate the area of triangles, rectangles and parallelograms	Recognise line symmetry	Set up a statistical enquiry		Understand and use the mean, median and mode	
	Investigate angles between parallel lines and the transversal	Calculate the area of a trapezium		Design and criticise questionnaires		Choose the most appropriate average	
	Identify and calculate with alternate and corresponding angles	Calculate the perimeter and area of compound shapes (1)	Reflect a shape in a horizontal or vertical line 1 (shapes touching the line)	Draw and interpret pictograms, bar charts and vertical line charts		H - Find the mean from an ungrouped frequency table	
	Identify and calculate with co-interior, alternate and corresponding angles	REVIEW: Calculate the circumference of a circle		Draw and interpret multiple bar charts		H - Find the mean from a grouped frequency table	
	Solve complex problems with parallel line angles	Investigate the area of a circle		Draw and interpret pie charts		Identify outliers	
	Construct triangles and special quadrilaterals	Calculate the area of a circle and parts of a circle without a calculator	Reflect a shape in a horizontal or vertical line 2 (shapes not touching the line)	Draw and interpret line graphs		Compare distributions using averages and the range	
	Identify and calculate with sides and angles in special quadrilaterals.	Calculate the area of a circle and parts of a circle with a calculator		Choose the most appropriate diagram for given set of data			
	H - Understand and use the properties of diagonals of quadrilaterals	Calculate the perimeter and area of compound shapes (2)	Reflect a shape in a diagonal line 1 (shapes touching the line)	Represent and interpret grouped quantitative data			
Understand and use the sum of exterior angles of any polygon			Find and interpret the range				
Understand and use the sum of interior angles of any polygon			Represent and interpret grouped quantitative data				
Calculate missing interior angles in regular polygons			Find and interpret the range				
H - Prove simple geometric facts		Reflect a shape in a diagonal line 2 (shapes not touching the line)					
H - Construct an angle bisector							
H - Construct a perpendicular bisector of a line segment							

Year 9		Half-term 1			Half-term 2		
Autumn	Reasoning with Algebra			Constructing in 2 and 3 Dimensions			
	Straight line graphs	Forming and solving equations	Testing Conjectures	Three dimensional shapes		Constructions and congruency	
	<i>R - Lines, parallel to the axes, $y=x$ and $y=-x$</i>	<i>R - Solve one and two-step equations and inequalities</i>	<i>R - Factors, multiples and primes</i>	Know names of 2-D and 3-D shapes		<i>R - draw and measure angles</i>	
	Using table of values	<i>R - Solve one and two-step equations and inequalities with</i>	True or false	Recognise prisms		<i>R - construct and interpret scale drawings</i>	
	Compare gradients	Inequalities with negative numbers	Always, sometimes, never true	Accurate nets of cuboids and other 3-D shapes		Locus of distance from a point	
	Compare intercepts	Solve equations with unknowns on both sides	Show that	sketch and recognise nets of cuboids and other 3-D shapes		Locus of distance from a straight line/shape	
	Understand and use $y=mx+c$	Solve inequalities with unknowns on both sides	Conjectures about number	plans and elevations		Locus of points equidistant from two points	
	Write an equation in the form $y=mx+c$	Equations and inequalities in other mathematical contexts	Expand a pair of binomials	<i>R - Find area of 2-D shapes</i>		construct a perpendicular bisector	
	Find the equation of a line from a graph	Substituting into formulae and equations	Conjectures with algebra	Surface area of cubes and cuboids		Construct a perpendicular from a point	
	Interpret gradient and intercepts of real-life graphs	Rearranging formulae (one-step)	Explore the 100 grid	surface area of triangular prisms		Construct a perpendicular to a point	
	Model real-life graphs involving inverse proportion	Rearranging formulae (two-step)	Expand three binomials (H)	surface area of a cylinder		Locus of distance from two lines	
	Explore perpendicular lines	Rearrange complex formulae including brackets and squares		volume of cubes and cuboids		Construct an angle bisector	
			Volume of other 3-D shapes - prisms and cylinders		<i>R - Construct triangles from given information</i>		
			Explore volumes of cone, pyramids and spheres		Identify congruent figures		
					Explore congruent triangles		
					Identify congruent triangles		
Year 9		Half-term 3			Half-term 4		
Spring	Reasoning with Number			Reasoning with Geometry			
	Numbers	Using percentages	Maths and money	Deduction	Rotation and Translation	Pythagoras' Theorem	
	Integers, real and rational numbers	<i>Use the equivalence of fractions, decimals and percentages (R)</i>	Solve problems with bills and bank statements	<i>Angles in parallel lines (R)</i>	Identify the order of rotational symmetry of a shape	<i>Squares and square roots (R)</i>	
	Understand and use surds (H)	<i>Calculate percentage increase and decrease (R)</i>	Calculate simple interest	Solve angle problems using chains of reasoning	Compare and contrast rotational symmetry with line symmetry	Identify the hypotenuse of a right-angled triangle	
	<i>Work with directed number (R)</i>	<i>Express a change as a percentage (R)</i>	Calculate compound interest	Angle problems with algebra	Rotate a shape about a point on a shape	Determine whether a triangle is right-angled	
	Solve problems with integers	Solve reverse percentage problems	Solve problems with Value Added Tax	Conjectures with angles	Rotate a shape about a point not on a shape	Calculate the hypotenuse of a right-angled triangle	
	Solve problems with decimals	Recognise and solve percentage problems (non-calculator)	Calculate wages and taxes	Conjectures with shapes	Translate points and shapes by a given vector	Calculate missing sides in right-angled triangles	
	<i>HCF and LCM (R)</i>	Recognise and solve percentage problems (calculator)	Solve problems with exchange rates	Link constructions and geometrical reasoning (H)	Compare rotation and reflection of shapes	Use Pythagoras' theorem on coordinate axes	
	<i>Adding and subtracting fractions (R)</i>	Solve problems with repeated percentage change (H)	Solve unit pricing problems		Find the result of a series of transformations (H)	Explore proofs of Pythagoras' theorem	
	<i>Multiplying and dividing fractions (R)</i>					Use Pythagoras' theorem in 3D shapes (H)	
Year 9		Half-term 5			Half-term 6		
Summer	Reasoning with Proportion			Representations and Revision			
	Enlargement and similarity	Solving ratio and proportion problems	Rates	Probability	Algebraic representation	Revision	
	Recognise enlargement and similarity	<i>Solve problems with direct proportion (R)</i>	Solve speed, distance and time problems without a calculator	<i>Single event probability (R)</i>	Draw and interpret quadratic graphs		
	Enlarge a shape by a positive integer scale factor	<i>Direct proportion and conversion graphs (R)</i>	Solve speed, distance and time problems with a calculator	Relative frequency - including convergence			
	Enlarge a shape by a positive integer scale factor from a point	Solve problems with inverse proportion	Use distance-time graphs	Expected outcomes	Interpret graphs, including reciprocal and piece-wise		
	Enlarge a shape by a positive fractional scale factor	Graphs of inverse relationships (H)	Solve problems with density, mass and volume	Independent events			
	Enlarge a shape by a negative scale factor (H)	<i>Solve ratio problems given the whole or a part (R)</i>	Solve flow problems and their graphs	Use tree diagrams (H)	Investigate graphs of simultaneous equations (H)		
	Work out missing sides and angles in a pair of given similar shapes	Solve best buy problems	Rates of change and their units	Use tree diagrams to solve without replacement problems (H)			
	Solve problems with similar triangles (H)	Solve problems involving ratio and algebra (H)	Convert compound units	Use diagrams to work out probabilities	Represent inequalities		
Explore ratios in right-angled triangles (H)							

GCSE Ready / Working Towards

UNIT 1: Number, powers, roots, decimals and rounding to 10,100,1000

- 1a [Integers and place value](#)
- 1b [Decimals](#)
- 1c [Indices, powers and roots](#)
- 1d [Factors, multiples and primes](#)

UNIT 2: Fractions, decimals and percentages

- 2a [Fractions](#)
- 2b [Percentages](#)
- 2c [Fractions, decimals and percentages](#)

UNIT 3: Drawing and interpreting tables and charts

- [Time & timetables](#)
- [Tables \(data collection\)](#)
- [Questionnaires](#)
- [Pictograms](#)
- [Line Graphs](#)
- [Bar charts](#)
- [Stem & Leaf](#)

UNIT 4: Mensuration & Properties of 2D shapes

- [Measurement and units](#)
- [Circles](#)
- [2D Shapes](#)
- [Symmetry](#)
- [Simple constructions](#)

UNIT 5: Perimeter and area, Angles, 3D forms shapes

- [Perimeter & Area](#)
- [Simple Angle Facts](#)
- [3D Forms](#)

UNIT 6: Expressions & substituting into simple formulae

- 6a [Algebra: the basics](#)
- 6b [Expressions and substitution into formulae](#)

UNIT 7: Probability .

- 7a [Probability Scale](#)
- 7b [Theoretical Probability.](#)

Crossover

Unit	Topic
01	Two Way Tables
02	Frequency Trees
03	Rounding and Error Intervals
04	Estimation
05	Use of Calculator
06 / 07	Product of Primes/HCF/LCM
08	Real-life Multiples
09 / 10	Fractions
11 / 12	Ratio
13	Direct Proportion
14 15 16	Proportion - Best Value Proportion - Recipes Proportion - Exchange Rates
17	Inverse Proportion
18 / 19	Percentages
20 / 21	Interest and Growth Depreciation and Decay
22	Reverse Percentages
23	Index Laws
24	Expand and Simplify
25	Sequences
26	Inequalities

Unit	Topic
27	Solving Equations
28 / 29	Forming and Solving Equations
30 / 31	Factorising
32	Changing the Subject
33 / 34	Standard Index Form
35	Angles in Parallel Lines
36	Interior and Exterior Angles
37	Plans and Elevations
38	Constructions and Loci
39	Bearings
40 - 45	Pythagoras' Theorem
	Trig - Finding Sides
	Trig - Finding Angles
	Trig - Non Calculator
	Pythagoras with Trig
46 - 48	Circles
	Arcs and Sectors
49 / 50	Surface Area and Volume
51	Sampling
52	Averages
53 / 54	Averages from a Table
	Averages from Grouped Data

Unit	Topic
55	Frequency Diagrams
56	Scatter Graphs
57	Time Series
58	Pie Charts
59 / 60	Coordinate Geometry
61	Straight Line Graphs
62	Non-linear Graphs
63 / 64	Speed, Distance, Time Compound Measures
65	Real-life Graphs
66 / 67	Congruence Similar Shapes
68 - 72	Reflections
	Rotations
	Translations
	Enlargements
	Combined Transformations
73	Vectors
74	Probability from a Table
75 / 76	Probability Trees
77	Venn Diagrams
78 / 79	Simultaneous Equations

Working Above

Unit	Topic	Unit	Topic
1	a. Recurring fractions	11	a. Graphs of trig functions
	b. Fractional/negative indices		b. Further trigonometry
	c. Product rule	12	a. Sampling
	d. Upper & lower bounds		b. Cumulative frequency & box plots
	e. Surds including rationalising		c. Histograms
2	a. Expanding & factorising	13	a. Using graphs of circles, cubes and quadratics
	b. Rearranging equations		b. Gradient and area under graphs
	c. Sequences (including quadratics)	14	Circle geometry – gradients/tangents
3	Coordinate geometry	15	Circle theorems
4	Surface area & volume - cylinders, cones, spheres & frustums	16	Algebraic fractions
5	Transformations	17	Functions
6	Quadratics including the formula & iteration	18	Algebraic Proof
7	Simultaneous equations	19	Congruence and geometric proof
8	Conditional probability	20	Vectors
9	Direct and inverse proportion		
10	Similarity in 2D & 3D		

