Term	Half term	Unit	Topic	KS3 Ref	KS3 Objective Statement(s)
		1 Whole numbers and decimals (Number)	Place value	N1	Understand and use place value for decimals, measures and integers of any size.
			Ordering whole numbers	N2	Order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols =, ≠, <, >, ≤, ≥ .
			Place value and decimals	N1	Understand and use place value for decimals, measures and integers of any size.
			Decimals and money	N12 DF1	Use standard units of mass, length, time, money and other measures, including with decimal quantities. Consolidate their numerical and mathematical capability from key stage 2 and extend their understanding of the number system and place value to include decimals, fractions, powers and roots.
			Adding decimals	N4	Use the 4 operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative.
			Temperature	N2	Order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols =, ≠, <, >, ≤, ≥ .
			Rounding and estimating	Y5 N13	Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 Round numbers and measures to an appropriate degree of accuracy [for example, to a number of decimal places or significant figures].

			Order of operations	N5	Use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals.
	1	2 Measures, perimeter and area (Geometry and measures)	Measuring lines	G3 N12	Draw and measure line segments and angles in geometric figures, including interpreting scale drawings. Use standard units of mass, length, time, money and other measures, including with decimal quantities.
			Reading scales		
			Time	Y5	Solve problems involving converting between units of time
			Shapes	G7 G3 DF7	Derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures [for example, equal lengths and angles] using appropriate language and technologies. Draw and measure line segments and angles in geometric figures, including interpreting scale drawings. Use language and properties precisely to analyse numbers, algebraic expressions, 2-D and 3-D shapes, probability and statistics.
			Perimeter	G1 G2	Derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms, trapezia, volume of cuboids (including cubes) and other prisms (including cylinders). Calculate and solve problems involving: perimeters of 2-D shapes (including circles), areas of circles and composite shapes.

	Area	Y5	Calculate and compare the area of rectangles (including squares), including using standard units, square centimetres (cm^2) and square metres (m^2), and estimate the area of irregular shapes
	Metric units	N12	Use standard units of mass, length, time, money and other measures, including with decimal quantities.
	Using letters 1	A1	Use and interpret algebraic notation, including: • ab in place of a × b • 3y in place of y + y + y and 3 × y • a^2 in place of a × a, a^3 in place of a × a × a; a^2b in place of a × a × b • a/b in place of a ÷ b • coefficients written as fractions rather than as decimals • brackets

Autumn term		3 Expressions and formulae (Algebra)	Using letters 2	A1 DF3	Use and interpret algebraic notation, including: • ab in place of a × b • 3y in place of y + y + y and 3 × y • a^2 in place of a × a, a^3 in place of a × a × a; a^2b in place of a × a × b • a/b in place of a ÷ b • coefficients written as fractions rather than as decimals • brackets Use algebra to generalise the structure of arithmetic, including to formulate mathematical relationships.
			Adding with symbols	A4	Simplify and manipulate algebraic expressions to maintain equivalence by: • collecting like terms • multiplying a single term over a bracket • taking out common factors • expanding products of 2 or more binomials
			Simplifying symbols	A4	Simplify and manipulate algebraic expressions to maintain equivalence by: • collecting like terms • multiplying a single term over a bracket • taking out common factors • expanding products of 2 or more binomials
			Substitution	A2	Substitute numerical values into formulae and expressions, including scientific formulae.
			Creating a formula	A6	Model situations or procedures by translating them into algebraic expressions or formulae and by using graphs.

4 Fractions, decimals and percentages (Number)	Writing fractions		
	Equivalent fractions	Y5	Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.
	Improper fractions	Y5	Recognise mixed numbers and improper fractions and convert from one form to the other.
	Fractions of an amount 1	N11	Interpret fractions and percentages as operators.
	Fractions of an amount 2	N11	Interpret fractions and percentages as operators.
	Percentages	N10	Define percentage as 'number of parts per hundred', interpret percentages and percentage changes as a fraction or a decimal, interpret these multiplicatively, express 1 quantity as a percentage of another, compare 2 quantities using percentages, and work with percentages greater than 100%.
	Finding percentages	N10	Define percentage as 'number of parts per hundred', interpret percentages and percentage changes as a fraction or a decimal, interpret these multiplicatively, express 1 quantity as a percentage of another, compare 2 quantities using percentages, and work with percentages greater than 100%.

2		Fractions, decimals and percentages	N9 N10 DF5	Work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and 7/2 or 0.375 and 3/8). Define percentage as 'number of parts per hundred', interpret percentages and percentage changes as a fraction or a decimal, interpret these multiplicatively, express 1 quantity as a percentage of another, compare 2 quantities using percentages, and work with percentages greater than 100%. Move freely between different numerical, algebraic, graphical and diagrammatic representations [for example, equivalent fractions, fractions and decimals, and equations and graphs]
	Assessment			
	5 Angles and 2D shapes	Angles	Y5	Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.
		Adding angles	G10	Apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles.
		Measuring angle	G3	Draw and measure line segments and angles in geometric figures, including interpreting scale drawings.
		Finding angles at a point	G10	Apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles.
		Calculating angles	G10	Apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles.

		(Geometry and measures)	Properties of triangles	G7 G3 DF7	Derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures [for example, equal lengths and angles] using appropriate language and technologies. Draw and measure line segments and angles in geometric figures, including interpreting scale drawings. Use language and properties precisely to analyse numbers, algebraic expressions, 2-D and 3-D shapes, probability and statistics.
			Angles in a triangle	G7	Derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures [for example, equal lengths and angles] using appropriate language and technologies.
			Compass turns	R2	Use scale factors, scale diagrams and maps.
		6 Graphs (Algebra)	Coordinates	A8	Work with coordinates in all 4 quadrants.
			Coordinates with negative numbers	A8	Work with coordinates in all 4 quadrants.
			Reading graphs	A13	Find approximate solutions to contextual problems from given graphs of a variety of functions, including piece-wise linear, exponential and reciprocal graphs.
			Line graphs 1	S2	Construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data.

			Line graphs 2	S2	Construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data.
	3	7 Adding and subtracting (Number)	Mental methods of addition	N4	Use the 4 operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative.
			Mental methods of subtraction	N4 SP4	Use the 4 operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative. Select appropriate concepts, methods and techniques to apply to unfamiliar and non-routine problems.
			Written addition and subtraction 1	N4 DF2	Use the 4 operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative. Select and use appropriate calculation strategies to solve increasingly complex problems.
			Written addition and subtraction 2	N4 SP4	Use the 4 operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative. Select appropriate concepts, methods and techniques to apply to unfamiliar and non-routine problems.
			Planning and collecting data		

ing term		8 Statistics (Statistics and probability)	Organising data	S2	Construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data.
			Reading lists and tables	Y5	Complete, read and interpret information in tables, including timetables.
			Reading and drawing pictograms	S2	Construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data.
			Reading and drawing bar charts	S2	Construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data.
			Reading pie charts	S2	Construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data.
			Reading diagrams	S2 RM7	Construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data. Explore what can and cannot be inferred in statistical and probabilistic settings, and begin to express their arguments formally.

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	Averages - the mode	S1	Describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving discrete, continuous and grouped data; and appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers).
	Averages - the median	S1	Describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving discrete, continuous and grouped data; and appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers).
	Comparing data sets - range and average	S1 DF7	Describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving discrete, continuous and grouped data; and appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers). Use language and properties precisely to analyse numbers, algebraic expressions, 2-D and 3-D shapes, probability and statistics.
Assessment			
9 Transformations and symmetry (Geometry and measures)	Lines of symmetry	G5	Describe, sketch and draw using conventional terms and notations: points, lines, parallel lines, perpendicular lines, right angles, regular polygons, and other polygons that are reflectively and rotationally symmetric.
	Reflection	G8	Identify properties of, and describe the results of, translations, rotations and reflections applied to given figures.
	Translation	G8	Identify properties of, and describe the results of, translations, rotations and reflections applied to given figures.

4		Rotation	G8	Identify properties of, and describe the results of, translations, rotations and reflections applied to given figures.
		Tessellations	G8	Identify properties of, and describe the results of, translations, rotations and reflections applied to given figures.
	Case study	Rangoli	RM5	Begin to reason deductively in geometry, number and algebra, including using geometrical constructions.
	10 Equations (Algebra)	Operations	DF6	Develop algebraic and graphical fluency, including understanding linear and simple quadratic functions.
		Inverse operations	N6	Recognise and use relationships between operations including inverse operations.
		Symbols and values	N6 A7	Recognise and use relationships between operations including inverse operations. Use algebraic methods to solve linear equations in 1 variable (including all forms that require rearrangement).
		Equations 1	A7	Use algebraic methods to solve linear equations in 1 variable (including all forms that require rearrangement).
		Equations 2	N6 A7 DF3 DF4	Recognise and use relationships between operations including inverse operations. Use algebraic methods to solve linear equations in 1 variable (including all forms that require rearrangement). Use algebra to generalise the structure of arithmetic, including to formulate mathematical relationships. Substitute values in expressions, rearrange and simplify expressions, and solve equations.
		Factors	N3	Use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation property.

		11 Factors and multiples (Number)	Multiples	N3	Use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation property.
			Tests of divisibility	Y5 N3	Identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers. Use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation property.
			Square Numbers	N7	Use integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5 and distinguish between exact representations of roots and their decimal approximations.
		12 Constructions and 3D shapes (Geometry and measures)	3D shapes	DF7 G15	Use language and properties precisely to analyse numbers, algebraic expressions, 2-D and 3-D shapes, probability and statistics. Use the properties of faces, surfaces, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres to solve problems in 3-D.
			Nets of cubes	G15	Use the properties of faces, surfaces, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres to solve problems in 3-D.
			Nets of 3D shapes	G15	Use the properties of faces, surfaces, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres to solve problems in 3-D.
			2D representations of 3D shapes		
			Measuring and drawing angles	G3	Draw and measure line segments and angles in geometric figures, including interpreting scale drawings.

	5		Drawing a triangle	G3 G9	Draw and measure line segments and angles in geometric figures, including interpreting scale drawings. Identify and construct congruent triangles, and construct similar shapes by enlargement, with and without coordinate grids.
			Introducing circles	G7	Derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures [for example, equal lengths and angles] using appropriate language and technologies.
		Assessment			
		13 Sequences (Algebra)	Sequences	Y5	They should recognise and describe linear number sequences (for example, 3, 3.5, 4, 4.5) including those involving fractions and decimals, and find the term-to-term rule in words (for example, add 0.5).
			Describing sequences	Y5 Y6	They should recognise and describe linear number sequences (for example, 3, 3.5, 4, 4.5) including those involving fractions and decimals, and find the term-to-term rule in words (for example, add 0.5). Generate and describe linear number sequences.
			Using rules	A14	Generate terms of a sequence from either a term-to-term or a position-to-term rule.
			Sequences with negative numbers	Y6 Y6	Generate and describe linear number sequences. Use negative numbers in context, and calculate intervals across 0
			Multiplication	Y5	Multiply and divide numbers mentally, drawing upon known facts.
			Multiplying by 10 and 100	Y5 N1	Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000. Understand and use place value for decimals, measures and integers of any size.

Summer term		14 Multiplying and dividing (Number)	Mental methods of multiplication	N4	Use the 4 operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative.
			Written methods of multiplication	N14 N4	Use approximation through rounding to estimate answers and calculate possible resulting errors expressed using inequality notation a<x≤b. Use the 4 operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative.
			Mental and written methods of division	N4	Use the 4 operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative.
			Division problems	N4	Use the 4 operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative.
			Written methods of division	Y5 N4	Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context. Use the 4 operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative.
			Calculator skills	N15 N14 SP1	Use a calculator and other technologies to calculate results accurately and then interpret them appropriately. Use approximation through rounding to estimate answers and calculate possible resulting errors expressed using inequality notation a<x≤b. Develop their mathematical knowledge, in part through solving problems and evaluating the outcomes, including multi-step problems.

6	15 Ratio and proportion (Ratio and proportion)	Ratio and proportion	R4 R6	Use ratio notation, including reduction to simplest form. Understand that a multiplicative relationship between 2 quantities can be expressed as a ratio or a fraction.
		ratio and proportion problems	R6 R9 RM2	Understand that a multiplicative relationship between 2 quantities can be expressed as a ratio or a fraction. Solve problems involving direct and inverse proportion, including graphical and algebraic representations. Extend and formalise their knowledge of ratio and proportion in working with measures and geometry, and in formulating proportional relations algebraically.
		Solving problems	SP2 RM6 DF2	Develop their use of formal mathematical knowledge to interpret and solve problems, including in financial mathematics. Interpret when the structure of a numerical problem requires additive, multiplicative or proportional reasoning. Select and use appropriate calculation strategies to solve increasingly complex problems.
		Scale drawings	R2	Use scale factors, scale diagrams and maps.
	16 Probability (Statistics and probability)	Introducing probability	DF7	Use language and properties precisely to analyse numbers, algebraic expressions, 2-D and 3-D shapes, probability and statistics.
		More probability	DF7	Use language and properties precisely to analyse numbers, algebraic expressions, 2-D and 3-D shapes, probability and statistics.
		The probability scale	P1	Record, describe and analyse the frequency of outcomes of simple probability experiments involving randomness, fairness, equally and unequally likely outcomes, using appropriate language and the 0-1 probability scale.
		Sorting with Venn diagrams	P3	Enumerate sets and unions/intersections of sets systematically, using tables, grids and Venn diagrams.

		Assessment			
		Everyday Maths			