

Autumn 1

Week	1	2	3	4	5	6	7
Curriculum Content	Number: Operations and Rounding Numbers	Number: Negative numbers and decimals	Number: Sequences	Number: Factors, multiples and Primes	Number: Calculating with Fractions	Number: Functions with decimals (Assessment Week)	Probability: Scales and Tree Diagrams
Intent / Implementation	<p>To use the four operations, including formal written methods. Students round numbers and measures to an appropriate degree of accuracy, using decimal places and significant figures. Students to use approximation through rounding to estimate answers and calculate possible resulting errors. Students to develop their mathematical knowledge and learn to select appropriate methods and techniques.</p>	<p>Students to order positive and negative integers and decimals, using a number line as a model for ordering of the real numbers. Students to use the symbols =, ≠, <, >, ≤, ≥. Students to develop their mathematical knowledge and to interpret when the structure of a numerical problem requires additive or multiplicative reasoning and to develop their mathematical knowledge, including multi-step problems.</p>	<p>Students to generate terms of a sequence from either term-to-term rule or a position-to-term rule. Students to recognise arithmetic sequences and find the n^{th}. Students to recognise geometric sequences and appreciate other sequences that arise. Students to make and test conjectures about patterns and relationships; look for proofs or counter examples.</p>	<p>Students to use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation. Students to interpret when the structure of a numerical problem requires additive or multiplicative reasoning and to develop their mathematical knowledge, including multi-step problems.</p>	<p>Students to use the four operations, including formal written methods, applied to proper and improper fractions. Students to interpret when the structure of a numerical problem requires additive or multiplicative reasoning and to develop their mathematical knowledge, including multi-step problems. Students to consolidate their understanding of the number system and place value to include fractions.</p>	<p>Students to understand and use place value for decimals. Students to use the four operations, including formal written methods, applied to decimals. Students to interpret when the structure of a numerical problem requires additive or multiplicative reasoning and to develop their mathematical knowledge, including multi-step problems. Students to consolidate their understanding of the number system and place value to include decimals.</p>	<p>Students to 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. Students to understand that the probabilities of all possible outcomes sum to 1. Students to use language and properties precisely to analyse probability. Students to identify variables and express relations between variables.</p>
Careers / SMSC / British Values	<p>Link fractions to sharing amongst friends, and finances. Sequences linked to banking and shares to see probable outcomes. The four operations to be linked to shopping throughout.</p>						<p>Opportunities for Probability, gambling and the online gaming industry promoting moral debate.</p>

Link to CO-OP North Curriculum	Completed in Year 7 – Half Term 1	Completed in Year 7 – Half Term 2	Completed in Year 8 – Half Term 3	Completed in Year 7 – Half Term 1	Completed in Year 7 – Half Term 5		Completed in Year 9 – Half Term 5
Link to TEMA Curriculum	Completed in Year 7		Completed in Year 9	Completed in Year 7			
Teacher Notes							

Autumn 2

Week	1	2	3	4	5	6	7	8
Curriculum Content	Probability: Independent and Dependent Variables	Statistics: Collecting and Representing Data	Statistics: Scatter graphs and averages	Geometry: Transformations (Translations and Rotations)	Geometry: Transformations (Reflections and Enlargements)	Geometry: Coordinates	Assessment Week + Catch up/Recap	Christmas Activities/ Projects
Intent / Implementation	Students to generate theoretical spaces for single and combined events with equally likely, mutually exclusive outcomes and use these to calculate theoretical probabilities. Students to use language and properties precisely to analyse probability. Students to identify variables and express relations between variables.	Students to interpret mathematical relationships graphically and to describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation (discrete, continuous and grouped data). They will be able to construct and interpret appropriate tables, charts, and diagrams, including bar charts, pie charts and pictograms for categorical data, and bar charts (ungrouped and grouped numerical data) and to move freely between different graphs and extend their understanding of graphical representations.	Students to describe, interpret and compare observed distributions of a single variable through appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers). Students to be able describe simple mathematical relationships between two variables in observational and experimental contexts and illustrate using scatter graphs. To use language and properties precisely to analyse statistics and to explore what can and cannot be inferred in statistical settings. Students to extend their understanding of graphical representations. To develop their mathematical knowledge including multi-step problems.	Students to identify properties of, and describe the results of translations, rotations applied to given figures. Students to use language and properties to analyse 2D shapes. Students to select appropriate concepts, methods, and techniques to apply to familiar and non- routine problems.	Students to identify properties of and describe the results of reflections applied to given figures. Students to identify and construct triangles, and to construct similar shapes by enlargement, with and without coordinate grids. Students to use language and properties to analyse 2D shapes. Students to select appropriate concepts, methods and techniques to apply to familiar and non- routine problems.	Students to consolidate KS2 knowledge of coordinates and to identify and construct congruent triangles and construct similar shapes with coordinate grids. Students to select appropriate concepts, methods and techniques to apply to familiar and non- routine problems.	Week used to complete term assessments and to work over any areas in the term which require more attention based upon teacher assessment.	Maths based Christmas activities which are to include the following skills; Students to interpret when the structure of a numerical problem requires additive or multiplicative reasoning. Students to develop their mathematical knowledge, in part through solving problems and evaluating the outcomes, including multi-step problems. Students to select appropriate concepts, methods and techniques to apply to familiar and non- routine problems.

Careers / SMSC / British Values		Ways to present data in any job that requires analysis. If self employed as a way of tracking finances or collecting data on customers	Designing for a space, decorating own house, map reading. To also link to building industry				N/A		
Link to CO-OP North Curriculum	Completed in Year 8	Completed in Year 8 – Half Term 6	Completed in Year 7 – Half Term 3				N/A		
Link to TEMA Curriculum		Completed in Year 9		Completed in Year 9				N/A	
Teacher Notes									

Spring 1

Week	1	2	3	4	5	6
Curriculum Content	Geometry: Properties of 2D shapes	Geometry: Perimeter and area of 2D shapes	Geometry: Properties of 3D shapes	Geometry: Plans / Elevations of 3D shape (Assessment week)	Geometry: Properties of circles	Algebra: Letters to represent numbers and like terms
Intent / Implementation	Students to derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures (for example, equal lengths and angles) using appropriate language and technologies. Students to use language and properties precisely to analyse 2D shapes.	Students to consolidate knowledge of KS2 area and perimeter of 2D shapes. Students to derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms and trapezia. Students to calculate and solve problems involving: perimeters of 2D shapes (including circles), areas of circles and composite shapes. Students to use language and properties precisely to analyse 2D shapes and to extend their knowledge of proportion in working with measures in geometry. Students to develop their mathematical knowledge, including multi-step problems and to select and use appropriate calculation strategies to solve increasingly complex problems.	Students to derive and apply formulae to calculate and solve problems involving volume of cuboids (including cubes) and other prisms (including cylinders). Students to use the properties of faces, surfaces, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres to solve problems in 3D. Students to extend and formalise their knowledge of proportion in geometry.	Students to derive and apply formulae to calculate and solve problems involving volume of cuboids (including cubes) and other prisms (including cylinders). Students to use the properties of faces, surfaces, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres to solve problems in 3D. Students to use language and properties precisely to analyse 3D shapes.	Students to calculate and solve problems involving perimeter and area of circles. Pupils to derive and apply formulae to calculate and solve problems involving volume of cylinders. Students to begin to reason deductively in geometry. Students to substitute numerical values into formulae and expressions, including scientific formulae.	Students to use and interpret algebraic notation as per National Curriculum. Students to understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors. Students to simplify and manipulate algebraic expressions to maintain equivalence by collecting like terms. Students to use algebra to generalise the structure of arithmetic, including to formulate mathematical relationships and to substitute values in expressions, rearrange and simplify expressions, and solve equations. Students to begin to develop algebraic fluency.
Careers / SMSC / British Values	Relate area and perimeter to building plans, construction,					See Spring 2

	architecture. Landmarks to increase cultural capital (find area, perimeter, angles)					
Link to CO-OP North Curriculum	Completed in Year 7 – Half Term 3		Completed in Year 8 – Half Term 4			Completed in Year 8 – Half Term 2
Link to TEMA Curriculum	Completed in Year 9					Completed in Year 9
Teacher Notes						

Spring 2

Week	1	2	3	4	5
Curriculum Content	Algebra: Multiply and divide letters and numbers	Algebra: Expanding brackets	Algebra: Solving linear equations	Algebra: Factorising	Algebra: Linear / Quadratic functions on Graphs (Assessment Week)
Intent / Implementation	<p>Students to be able to simplify and manipulate algebraic expressions to maintain equivalence by expanding products of two or more binomials. Students to be able to use and interpret algebraic notations. Students to substitute numerical values into formulae and expressions. Students to continue to develop algebraic fluency and to use language and properties to analyse algebraic expressions. Students to develop knowledge of how to use algebra to generalise the structure of arithmetic, including to formulate mathematical relationships.</p>	<p>Students to be able to simplify and manipulate algebraic expressions to maintain equivalence by multiplying a single term over a bracket. Students to substitute numerical values into formulae and expressions. Students to be able to use and interpret algebraic notation. Students to interpret when the structure of a numerical problem require additive or multiplicative reasoning. Students to develop their mathematical knowledge, including multi-step problems. Students to continue to develop algebraic fluency and to use language and properties to analyse algebraic expressions. Students to develop knowledge of how to use algebra to generalise the structure of arithmetic, including to formulate mathematical relationships.</p>	<p>Students to use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement). Students to continue to use and interpret algebraic notation. Students to continue to develop algebraic fluency and to use language and properties precisely to analyse algebraic expressions. Students to interpret when the structure of a numerical problem require additive or multiplicative reasoning. Students to develop their mathematical knowledge, including multi-step problems. Students to substitute numerical values into formulae and expressions. Students to continue to develop algebraic fluency and to use language and properties to analyse algebraic expressions. Students to develop knowledge of how to use algebra to generalise the structure of arithmetic, including to formulate mathematical relationships.</p>	<p>Students to interpret mathematical relationships algebraically. Students to use and interpret algebraic notation. Students to reason deductively in algebra. Students to use and interpret algebraic notation. Students to substitute numerical values into formulae and expressions. Students to continue to develop algebraic fluency and to use language and properties to analyse algebraic expressions. Students to develop knowledge of how to use algebra to generalise the structure of arithmetic, including to formulate mathematical relationships.</p>	<p>Students to use linear and quadratic graphs to estimate values of y for given values of x and vice versa and to find approximate solutions of simultaneous linear equations. Students to model situations or procedure by translating them into algebraic expression or formulae and by using graphs. Students to recognise, sketch and produce graphs of linear and quadratic functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane. Students to model situations mathematically and express the results using a range of formal mathematical representations.</p>

Careers / SMSC / British Values	Link to other subjects and jobs in science. Link to shopping and calculations of cost (interchanging values into equations). Opportunities to link to code breaking and Alan Turing.			
Link to CO-OP North Curriculum	Completed in Year 8 – Half Term 2	Completed in Year 9 – Half Term 2	Completed in Year 8 – Half Term 2	Completed in Year 9 – Half Term 1
Link to TEMA Curriculum	Completed in Year 9			
Teacher Notes				

Summer 1

Week	1	2	3	4	5	6
Curriculum Content	Algebra: Speed, Distance, Time & graphs	Ratio: Equivalent measure	Ratio: Scale Diagrams and quantities	Ratio: Divide quantities	Ratio: Supermarket problems	Geometry: Pythagoras Theory
Intent / Implementation	Students to substitute numerical values into formulae and expressions, including scientific formulae. Students to understand and use standard mathematical formulae; to rearrange formulae to change the subject. Students to find approximate solutions to contextual problems from given graphs. Students to use compound units such as speed. Students to be able substitute values in expressions, rearrange and solve equations.	Students to change freely between related standard units (for example time, length, area, volume/capacity, mass). Students to extend their understanding of the number system; to make connections between number relationships.	Students to use scale factors, scale diagrams and maps. Students to express one quantity as a fraction of another, where the fraction is less than 1 and greater than 1. Students to extend and formalise their knowledge of ratio in working with measures.	Students to 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. Students to understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction. Students to relate the language of ratios and the associated calculations to the arithmetic of fractions and to linear functions. Students to extend and formalise their knowledge of ratio in working measures.	Students to solve problems involving percentage change, including: percentage increase, decrease and original value problems and simple interest in financial mathematics. Students to solve problems involving direct and inverse proportion. Students to interpret when the structure of a problem requires additive, multiplicative or proportional reasoning. Students to develop their mathematical knowledge, in part through solving problems and evaluating the outcomes, including multi-step problems. Students to develop their use of formal mathematical knowledge to interpret and solve problems, including in financial mathematics.	Students to use Pythagoras' Theorem and trigonometric ratios in similar triangles to solve problems involving right-angled triangle. Students to apply angle facts, triangle congruence to derive results about angles and sides, including Pythagoras Theorem. Students to substitute values and expressions and to solve equations. Students to develop their mathematical knowledge, in part through solving and evaluating the outcomes, including multi-step problems.
Careers / SMSC / British Values		Link to map reading skills, comparing values when shopping. Also link to recipes when cooking (ordering buying ingredients if making more/less than recipe).				Relate area and perimeter to building plans, construction, architecture. Landmarks to increase cultural capital (find area, perimeter, angles)

Link to CO-OP North Curriculum		Completed in Year 7 – Half Term 6		Completed in Year 9 – Half Term 4		Completed in Year 9 – Half Term 3	
Link to TEMA Curriculum		Completed in Year 8					Completed in Year 8
Teacher Notes							

Summer 2

Week	1	1	2	3	4	5	7
Curriculum Content	Geometry: Angles facts and measure	Geometry: Angles about points/parallel lines	Geometry: Exterior and Interior Angles & Bearings	End of year Assessment Week	Number: Fractions and Equivalents	Number: Recap BIDMAS and Rounding	Revision
Intent / Implementation	Students to draw and measure line segments and angles in geometric figures and to derive and use the standard ruler and compass constructions. Students to describe, sketch and draw conventional terms and notations: points, lines, parallel lines, perpendicular line, right angles, regular polygons, and other polygons. Students to reason deductively in geometry.	Students to apply the properties of angles at a point, angles at a point on a straight line and vertically opposite angles. Students to understand and use the relationship between parallel lines and alternate and corresponding angles. Students to interpret when the structure of a numerical problem requires additive or proportional reasoning. Students to reason deductively in geometry.	Students to derive and use the sum of angles in a triangle and use it to deduce the angle sum in any polygon, and to derive properties of regular polygons. Students to derive and use the standard ruler and compass constructions. Students to reason deductively in geometry. Students to select appropriate concepts, methods and techniques to apply to familiar and non-routine problems.	End of year assessments to take place covering all the areas covered over the year through more than one paper.	Students to work interchangeably with terminating decimals and their corresponding fractions. Students to define percentage as 'number of parts per hundred', interpret percentages and percentage changes as a fraction or a decimal, interpret these multiplicatively, express one quantity as a percentage of another, compare two quantities using percentages, and work with percentages greater than 100%. Students to interpret fractions and percentages as operators. Students to select and use appropriate calculation strategies to solve increasingly complex problems.	Students to use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals). Students to use the four operations, including formal written methods. Students round numbers and measures to an appropriate degree of accuracy, using decimal places and significant figures. Students to use approximation through rounding to estimate answers and calculate possible resulting errors. Students to develop their mathematical knowledge and learn to select appropriate methods and techniques.	Lessons planned around gaps in knowledge as identified in the end of year assessment or through teacher based assessment.
Careers / SMSC / British Values	Relate area and perimeter to building plans, construction, architecture. Landmarks to increase cultural capital (find area, perimeter, angles)				See number lessons at the beginning of the year.		
Link to CO-OP North Curriculum	Completed in Year 8 – Half Term 3	Completed in Year 8 – Half Term 3	Completed in Year 7 – Half Term 3	N/A	Completed in Year 7 – Half Term 5	Completed in Year 7 – Half Term 1	

Link to TEMA Curriculum	Completed in Year 8			N/A	Completed in Year 7	Completed in Year 8	
Teacher Notes							