

	Pupils should be taught to:	Prior Knowledge Needed	Try This First	Resource	Mastery Task
Subject Content: Number	Understand and use place value for decimals, measures and integers of any size.			This can be achieved through any of the place value worksheets.	
	Order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols =, ≠, <, >, ≤, ≥.	<ul style="list-style-type: none"> Place value. Using a place value chart. 	Students should have a good understanding of place value from KS2.	Ordering Integers	Ordering Integers – I’m Thinking of a Number
		<ul style="list-style-type: none"> Place value. Using a place value chart. Converting money between pounds and pence. 	Students should have a good understanding of place value from KS2.	Ordering Decimals	Ordering Decimals – Puzzle Grids
		<ul style="list-style-type: none"> Place value. How to order positive numbers. 	Ordering Integers	Ordering Negative Numbers	Ordering Negative Numbers – Puzzle Grids
		<ul style="list-style-type: none"> An understanding of place value for both positive and negative numbers, including integers and decimals. Be able to apply the four operations to positive and negative numbers. Be able to apply the rules of BIDMAS to calculations. 	Ordering Integers	Greater Than, Less Than or Equal To	Greater Than, Less Than or Equal To – Number Chains and Venn Diagrams
	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.	<ul style="list-style-type: none"> Finding factors. Prime numbers. Times tables. 		Prime Factor Decomposition	Prime Factor Decomposition – Worded Problems
<ul style="list-style-type: none"> Times tables. 		Students should have a good understanding of place value from KS2.	Types of Number	Types of Number – Always, Sometimes, Never True	

Use the four operations, including the formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative.	<ul style="list-style-type: none"> • How to use a place value chart. • An understanding of place value. 	Students should have a good understanding of place value from KS2.	Multiplying and Dividing by Powers of 10	Multiplying and Dividing by Powers of 10 – Board Game	
	<ul style="list-style-type: none"> • An understanding of place value. • Dividing whole numbers and decimals by 10 or 100. 		Multiplying and Dividing by Powers of 10	Multiplying by 0.1 and 0.01 – Treasure Hunt	
	<ul style="list-style-type: none"> • An understanding of place value. • Multiply whole numbers and decimals by 10 or 100. 		Multiplying and Dividing by Powers of 10	Dividing by 0.1 and 0.01 (and further powers of 10) – Fill the Gaps	
	<ul style="list-style-type: none"> • Times tables. 	Students should have a good understanding of times tables from KS2.		Long Multiplication	Long Multiplication – Number Pyramids
	<ul style="list-style-type: none"> • Times tables. 	Students should have a good understanding of times tables from KS2.		Division with Remainders	Division with Remainders – The Best Method
	<ul style="list-style-type: none"> • Times tables. • Division with remainders. 		Division with Remainders	Short Division	Short Division – Spot the Mistakes
	<ul style="list-style-type: none"> • Be able to correctly place numbers (integers and decimals) into a place value chart. • Be able to change money between pence and pounds. 	Students should have a good understanding of place value from KS2.		Addition: Column Method	Addition – Box Puzzle
	<ul style="list-style-type: none"> • Be able to correctly place numbers (integers and decimals) into a place value chart. • Be able to read numbers confidently. • Be able to change money between pence and pounds. 		Addition: Column Method	Subtraction: Column Method	Subtraction – Fill in the Gaps
	<ul style="list-style-type: none"> • Be able to perform the four operations with positive numbers. 		Addition: Column Method Subtraction: Column Method	The Four Operations with Negative Numbers	The Four Operations with Negative Numbers – Fill in the Signs

Subject Content: Number	<ul style="list-style-type: none"> • How to calculate the highest common factor of two numbers. • Using inverse operations. 	Inverse Operations	Writing Equivalent and Simplified Fractions	Expressing a Quantity as a Fraction or Percentage of Another – Board Game
	<ul style="list-style-type: none"> • Division with remainders. • Times tables. • Writing fractions in their simplest form. 	Division with Remainders Writing Equivalent and Simplified Fractions	Calculations with Fractions	Calculations with Fractions – Shape Conundrums
	<ul style="list-style-type: none"> • Writing fractions in their simplest form. • Division with remainders 	Writing Equivalent and Simplified Fractions	Converting between Mixed Number and Improper Fractions	Converting Between Mixed Numbers and Improper Fractions – Fill the Gaps
	<ul style="list-style-type: none"> • Equivalent fractions. • Writing fractions in their simplest form. • Lowest common multiple. • How to convert between mixed number and improper fractions. 	Writing Equivalent and Simplified Fractions Converting between Mixed Number and Improper Fractions	Adding and Subtracting Fractions	Adding and Subtracting Fractions – Set the Question
	<ul style="list-style-type: none"> • Equivalent fractions. • Writing fractions in their simplest form. • Lowest common multiple. • How to convert between mixed number and improper fractions. 	Writing Equivalent and Simplified Fractions Converting between Mixed Number and Improper Fractions	Multiplying and Dividing Fractions	Multiplying and Dividing Fractions – Arithmagons
	Use conventional notation for the priority of operations, including brackets, powers roots and reciprocals.	<ul style="list-style-type: none"> • Times tables. • Powers. • Be able to apply the four operations to both positive and negative numbers. • Be able to apply the four operations to both positive and negative numbers. 	The Four Operations with Negative Numbers	BIDMAS
Recognise and use relationships between operations including inverse operations.	<ul style="list-style-type: none"> • Be able to apply the four operations to both positive and negative numbers. 	The Four Operations with Negative Numbers	Inverse Operations	Inverse Operations – Challenge Cards

Subject Content: Number	Use integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5 and distinguish between exact representations or roots and their decimal approximations.	<ul style="list-style-type: none"> • Square numbers. • Cube numbers. • Square roots. • Cube roots. • Multiplying negative numbers. 	Types of Number	Indices and Roots	Indices and Roots – Judging Statements
	Interpret and compare numbers in standard form $A \times 10^n$ ($1 \leq A < 10$), where n is a positive or negative integer or zero.	<ul style="list-style-type: none"> • Multiplying and dividing numbers by powers of 10 	Multiplying and Dividing by Powers of 10	Standard Form	Standard Form – Words for Large Numbers
	Work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and $\frac{7}{2}$ or 0.375 and $\frac{3}{8}$).	<ul style="list-style-type: none"> • Finding equivalent fractions. • How to multiply and divide by 10 and 100. 	Writing Equivalent and Simplified Fractions Multiplying and Dividing by Powers of 10	Fractions, Decimals and Percentages	Fractions, Decimals and Percentages – Challenge Cards
	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%.	<ul style="list-style-type: none"> • How to convert a decimal to a percentage. • How to multiply and divide by 10 and 100. 	Multiplying and Dividing by Powers of 10	Finding a Percentage of an Amount (Without a Calculator)	Finding a Percentage of an Amount – Percentage Pathways
		<ul style="list-style-type: none"> • Finding the percentage of an amount without a calculator. • How to convert a percentage to a decimal. 	Finding a Percentage of an Amount (Without a Calculator)	Finding the Percentage of an Amount Using a Multiplier	Finding the Percentage of an Amount – Dot-to-Dot
<ul style="list-style-type: none"> • Finding equivalent fractions. • Convert between fractions and percentages. 		Writing Equivalent and Simplified Fractions	Expressing a Quantity as a Fraction or Percentage of Another	Expressing a Quantity as a Fraction or Percentage of Another – Board Game	
<ul style="list-style-type: none"> • Equivalent fractions. • Multiplying by 100. • Dividing by 100. 		Writing Equivalent and Simplified Fractions Multiplying and Dividing by Powers of 10	Fractions, Decimals and Percentages	Fractions, Decimals and Percentages – Challenge Cards	

Subject Content: Number	Interpret fractions and percentages as operators.	<ul style="list-style-type: none"> How to convert a decimal to a percentage. How to multiply and divide by 10 and 100. 	Multiplying and Dividing by Powers of 10	Finding a Percentage of an Amount (Without a Calculator)	Finding a Percentage of an Amount – Percentage Pathways
		<ul style="list-style-type: none"> Finding the percentage of an amount without a calculator. How to convert a percentage to a decimal. 	Finding a Percentage of an Amount (Without a Calculator)	Finding the Percentage of an Amount Using a Multiplier	Finding the Percentage of an Amount – Dot-to-Dot
	Use standard units of mass, length, time, money and other measures, including with decimal quantities.	Examples included throughout number worksheets.			
	Round numbers and measures to an appropriate degree of accuracy (for example, to a number of decimal places or significant figures).	<ul style="list-style-type: none"> Place values. Finding a midpoint between two numbers. 	Students should have a good understanding of place value from KS2.	Rounding to the Nearest 10, 100 and 1000	Rounding to the Nearest 10, 100 and 1000 – Set the Question
		<ul style="list-style-type: none"> It may be useful to know how to round to the nearest 10, 100 and 1000. Place values. 		Rounding to the Nearest 10, 100 and 1000	Rounding to a Given Number of Decimal Places – Rounding Backwards
		<ul style="list-style-type: none"> Place value. The four operations. Writing numbers as digits from words. 	Students should have a good understanding of place value from KS2.	Rounding to Significant Figures	Significant Figures – Card Game
	Use approximation through rounding to estimate answers and calculate possible resulting errors expressed using inequality notation $a < x \leq b$.	<ul style="list-style-type: none"> Rounding numbers to 1 significant figure. Powers and roots. Be able to apply the four operations to both positive and negative numbers. 	Rounding to Significant Figures	Estimation	Estimation – Explaining Estimations
Use a calculator and other technologies to calculate results accurately and then interpret them appropriately.	This sheet is geared towards the use of a CASIO fx-85GT.		Using a Calculator	Using a Calculator – Crossnumber	
Appreciate the infinite nature of the sets of integers, real and rational numbers.	Number Vocabulary			Number Vocabulary – Can You Guess?	

	Pupils should be taught to:	Prior Knowledge Needed	Try This First	Resource	Mastery Task
Subject Content: Algebra	Use and interpret algebraic notation, including: <ul style="list-style-type: none"> • ab in place of $a \times b$; • $3y$ in place of $y + y + y$ and $3 \times y$; • a^2 in place of $a \times a$, a^3 in place of $a \times a \times a$; • a^2b in place of $a \times a \times b$; • $\frac{a}{b}$ in place of $a \div b$; • coefficients written as fractions rather than as decimals; • brackets. 	<ul style="list-style-type: none"> • Adding and subtracting with positive and negative numbers. 	The Four Operations with Negative Numbers	Express Problems Algebraically	Writing Algebraic Expressions
	Understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors.	Algebra Vocabulary			Algebra Vocabulary – Can you Guess?
	Substitute numerical values into formulae and expressions, including scientific formulae.	<ul style="list-style-type: none"> • BIDMAS. • Be able to apply the four operations to positive and negative numbers. • Powers. 	BIDMAS The Four Operations with Negative Numbers	Substitution	Putting Numbers into Formulae – Unusual Words Substitution – Dice Game
	Simplify and manipulate algebraic expressions to maintain equivalence by: <ul style="list-style-type: none"> • collecting like terms; • multiplying a single term over a bracket; • taking out common factors; • expanding products of two or more binomials. 	<ul style="list-style-type: none"> • Multiplying and dividing with positive and negative numbers. • Index laws. 	The Four Operations with Negative Numbers	Simplifying Terms	Simplifying Terms – Matching Game
	<ul style="list-style-type: none"> • Adding and subtracting with positive and negative numbers. • Perimeter (challenge only). 	The Four Operations with Negative Numbers	Collecting Like Terms	Collecting Like Terms – Simplification Pyramids	
	<ul style="list-style-type: none"> • Multiplication of positive and negative numbers. • Collecting like terms. • Area (challenge only). 	The Four Operations with Negative Numbers	Expanding Single Brackets	Expanding Single Brackets – Match-Up Cards	

Subject Content: Algebra		<ul style="list-style-type: none"> • Be familiar with algebraic vocabulary such as term, expand and expression. • Calculate factors and the highest common factor. • Expanding brackets. 	<p>Algebra Vocabulary</p> <p>Expanding Single Brackets</p>	<p>Factorising</p>	<p>Factorising into Single Brackets – Find-and-Sink Game</p>
		<ul style="list-style-type: none"> • Expanding single brackets. • Collecting like terms and simplifying expressions. • Adding and multiplying negative numbers. 	<p>Expanding Single Brackets</p>	<p>Expanding Double Brackets</p>	<p>Expanding Double Brackets – A Puzzling Square</p>
	Use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement).	<ul style="list-style-type: none"> • Be confident in using BIDMAS. • Familiar with multiplying algebraic expressions and substitution. 	<p>BIDMAS</p> <p>Simplifying Terms</p>	<p>Solving Equations with One Variable</p>	<p>Solving Equations with One Variable – Maze</p>
	Understand and use standard mathematical formulae; rearrange formulae to change the subject.	<ul style="list-style-type: none"> • Be confident in using BIDMAS. • Solving linear equations. 	<p>BIDMAS</p> <p>Solving Equations with One Variable</p>	<p>Rearranging Formulae</p>	<p>Rearranging Formulae – Code Breaking</p>
	Model situations or procedures by translating them into algebraic expressions or formulae and by using graphs.	<ul style="list-style-type: none"> • How to solve linear equations. • Substituting into expressions. • Perimeter of rectangles. 	<p>Solving Equations with One Variable</p> <p>Substituting into Formulae</p>	<p>Forming and Solving Equations</p>	<p>Forming and Solving Equations</p>
		<ul style="list-style-type: none"> • Perimeter. • Collecting like terms. • Area of a rectangle. 	<p>Collecting Like Terms</p> <p>Area Questions</p>	<p>Forming Expressions</p>	<p>Forming Expressions – Algebraic Proof</p>
Work with coordinates in all four quadrants.	Coordinates in 4 Quadrants			<p>Coordinates in 4 Quadrants – Worded Problems</p>	

Subject Content: Algebra	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.	<ul style="list-style-type: none"> Substituting into algebraic expressions. Plot coordinates in all 4 quadrants. 	<p>Substituting into Formulae</p> <p>Coordinates in 4 Quadrants</p>	<p>Drawing Straight-Line Graphs</p> <p>Drawing Quadratic Graphs</p>	<p>Drawing Straight-Line Graphs – Space Defence</p>
	Reduce a given linear equation in two variables to the standard form $y = mx + c$; calculate and interpret gradients and intercepts of graphs of such linear equations numerically, graphically and algebraically.	<ul style="list-style-type: none"> Plot coordinates. Plot a straight line using an equation. 	<p>Coordinates in 4 Quadrants</p>	<p>Finding the Gradient of a Straight-Line Graph</p>	<p>Finding the Gradient of a Straight-Line Graph – Matching Cards</p>
		<ul style="list-style-type: none"> Calculating the gradient of a straight line. Adding and subtracting negative numbers. How to read and write coordinates. 	<p>Coordinates in 4 Quadrants</p> <p>Finding the Gradient of a Straight-Line Graph</p>	<p>Finding the Equation of a Straight Line</p>	<p>Equations of Straight-Line Graphs – Codebreaker</p>
		<ul style="list-style-type: none"> How to read, write and plot coordinates in all 4 quadrants. 	<p>Coordinates in 4 Quadrants</p>	<p>Straight-Line Graphs</p>	<p>Straight-Line Graphs of the Form $y = a$, $x = b$, $y = x$ Matching Pairs</p>
		<ul style="list-style-type: none"> How to read, write and plot coordinates in all 4 quadrants. How to substitute into expressions. Be able to apply all four operations to positive and negative numbers. 	<p>Coordinates in 4 Quadrants</p> <p>Substituting into Formulae</p> <p>The Four Operations with Negative Numbers</p>	<p>Straight Line Graphs with Equations of the Form $y = mx$</p>	<p>Linear Graphs of the Form $y = mx + c$ – Line Similarities</p> <p>Straight Line Graphs with Equations of the Form $y = mx$ – Quilting</p>
	<ul style="list-style-type: none"> Plot coordinates in all 4 quadrants. Have knowledge of $y = mx + c$ 	<p>Coordinates in 4 Quadrants</p>	<p>Recognise, Sketch and Produce Graphs of Linear and Quadratic Functions of 1 Variable</p>	<p>Recognise, Sketch and Produce Graphs of Linear and Quadratic Functions of 1 Variable – Sorting Activity</p>	
Use linear and quadratic graphs to estimate the values of y for given values of x and vice versa and to find approximate solutions of simultaneous linear equations.	<ul style="list-style-type: none"> Draw a straight-line graph. Reading coordinates. Rearranging formulae. 	<p>Coordinates in 4 Quadrants</p> <p>Drawing Straight-Line Graphs</p> <p>Rearranging Formulae</p>	<p>Solving Simultaneous Equations Graphically</p>	<p>Coordinates in 4 Quadrants – Worded Problems</p>	

Subject Content: Algebra	Find approximate solutions to contextual problems from given graphs of a variety of functions, including piece-wise linear, exponential and reciprocal graphs.	<ul style="list-style-type: none"> • Read coordinates in all 4 quadrants. 	Coordinates in 4 Quadrants	Contextual Problems in Given Graphs	Solving Simultaneous Equations Graphically – Jigsaws
	Generate terms of a sequence from either a term-to-term or a position-to-term rule.	<ul style="list-style-type: none"> • Substituting into formulae. • Solve a linear equation. 	Substituting into Formulae Solving Equations with One Variable	Generating Linear Sequences	Generating Linear Sequences – Sequence Hexagons
	Recognise arithmetic sequences and find the n^{th} term.	<ul style="list-style-type: none"> • Times tables. • Solving linear equations. 	Solving Equations with One Variable	Linear Sequences	Linear Sequences – Sequence Grids
	Recognise geometric sequences and appreciate other sequences that arise.	<ul style="list-style-type: none"> • Confidently multiply and divide two numbers. • Multiply and divide fractions. 	Multiplying and Dividing Fractions	Geometric Sequences	Geometric Sequences – Sequence Puzzlers
	Interpret mathematical relationships both algebraically and graphically.	<ul style="list-style-type: none"> • Plot coordinates in all 4 quadrants. • Solve 2-step equations with unknowns on one side. • Form equations. • Rearrange formulae. 	Coordinates in 4 Quadrants Solving Equations with One Variable	Interpret Mathematical Relationships Both Algebraically and Graphically	Interpret Mathematical Relationships Both Algebraically and Graphically – Matching Activity

	Pupils should be taught to:	Prior Knowledge Needed	Try This First	Resource	Mastery Task
Subject Content: Ratio, Proportion and Rates of Change	Change freely between standard units (for example, time, length, area, volume/ capacity, mass).	<ul style="list-style-type: none"> • Multiplying and dividing by 10, 100 and 1000. • Multiplication and division. 	Multiplying and Dividing by Powers of 10	Converting Between Units	Converting Between Units - Triangular Dominoes
	Use scale factors, scale diagrams and maps.	<ul style="list-style-type: none"> • Be able to draw and measure accurately using a ruler. • Multiplication and division. 	Drawing and Measuring Line Segments	Scale Drawings	Converting Scale Measurements into Real-Life Measurements
	Express one quantity as a fraction of another, where the fraction is less than 1 and greater than 1.	<ul style="list-style-type: none"> • Find equivalent fractions. • Convert between fractions and percentages. 	Writing Equivalent and Simplified Fractions	Expressing a Quantity as a Fraction or Percentage of Another	Expressing a Quantity as a Fraction or Percentage of Another - Board Game
	Use ratio notation, including reduction to simplest form.	<ul style="list-style-type: none"> • Finding the highest common factor. • Times tables. • Multiplication and division. 	Students should have a good understanding of times tables from KS2.	Working with Ratio	Working With Ratio - Gear Ratios
	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.	<ul style="list-style-type: none"> • Be able to apply all four operations to positive numbers. • Substitution. • An understanding of what ratio is. 	Working with Ratio	Sharing an Amount in a Given Ratio	Ratio - Paint Panic
	Understand that a multiplicative relationship between two quantities can be expressed as a ratio or fraction.	<ul style="list-style-type: none"> • Sharing an amount in a given ratio. • Finding a fraction of an amount. • Writing fractions. 	Sharing an Amount in a Given Ratio Calculations with Fractions	Working with Fractions and Ratio	Working with Fractions and Ratio - Fill in the Gaps
	Relate the language of ratios and the associated calculations to the arithmetic of fractions and to linear functions.	<ul style="list-style-type: none"> • Sharing an amount in a given ratio. • Finding a fraction of an amount. • Writing fractions. 	Sharing an Amount in a Given Ratio Calculations with Fractions	Working with Fractions and Ratio	Working with Fractions and Ratio - Fill in the Gaps

Ratio, Proportion and Rates of Change	Solve problems involving percentage change, including: percentage increase, decrease and original value problems and simple interest in financial mathematics.	Calculating percentage increase/decrease by calculating the percentage and then adding to/subtracting from the original amount.	Percentage Increase and Decrease	Percentage Increase and Decrease – Deceptive Triangular Dominoes
		• Calculate a percentage increase or decrease using a multiplier.	Percentage Increase and Decrease	Original Value Problems – Rock, Paper, Scissors Game
	Solve problems involving direct and inverse proportion, including graphical and algebraic representations.	Calculate proportions using the unit method.	Direct and Inverse Proportion	Direct and Inverse Proportion – Sorting Activity
	Use compound units such as speed, unit pricing and density to solve problems.	• Multiplication and division. • An understanding of time.	Speed, Distance, Time	Speed, Distance, Time – Four-in-a-Row Game
	• Rearranging formulae. • Substituting into formulae.	Rearranging Formulae Substituting into Formulae	Compound Measures	Compound Measures – Crossnumber

Subject Content: Geometry and Measures	Pupils should be taught to:	Prior Knowledge Needed	Try This First	Resource	Mastery Task
	<p>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).</p>	<ul style="list-style-type: none"> Be able to find the area of a shape by counting squares. Be familiar with solving equations. 	<p>Solving Equations with One Variable</p>	<p>Area</p>	<p>Area – Shape Conundrums</p>
	<ul style="list-style-type: none"> Be familiar with cubes and cuboids, and their properties. 	<p>3D Shapes</p>	<p>Volume of Cubes and Cuboids</p>	<p>Volumes of Cubes and Cuboids – Bump Game</p>	
	<ul style="list-style-type: none"> How to calculate the area of a circle Rounding numbers to whole numbers, 1 and 2 decimal places. 	<p>Area of Circles Rounding to a Given Number of Decimal Places</p>	<p>Volume of Cylinders</p>	<p>Volume of Cylinders – Matching Cards</p>	
<p>Calculate and solve problems involving: perimeters of 2D shapes (including circles), areas of circles and composite shapes.</p>	<ul style="list-style-type: none"> Calculate the area of a circle. Round numbers to the nearest whole number. Calculate the area of a triangle, rectangle, square and trapezium. 	<p>Area of Circles Rounding to the Nearest 10, 100 and 1000 Area</p>	<p>Volume of Prisms</p>	<p>Volume of Prisms – Dominoes</p>	
	<ul style="list-style-type: none"> Round numbers to the nearest whole number, as well as 1 and 2 decimal places. Calculating the area of other 2D shapes such as triangles. Substituting numbers into formulae. 	<p>Rounding to a Given Number of Decimal Places Substituting into Formulae Area</p>	<p>Area of Circles</p>	<p>Area of Circles – Concentric Circles</p>	
	<ul style="list-style-type: none"> Round numbers to the nearest whole numbers, as well as 1 and 2 decimal places. Be confident using a calculator. Familiar with substituting into formulae. 	<p>Rounding to a Given Number of Decimal Places Substituting into Formulae</p>	<p>Circumference of Circles</p>	<p>Circumference of Circles – Finding Pi</p>	
	<ul style="list-style-type: none"> How to calculate the area of squares, rectangles and triangles. 	<p>Area</p>	<p>Area of Composite Shapes</p>	<p>Area of Composite Shapes – Ordering Shapes</p>	

Subject Content: Geometry and Measures		<ul style="list-style-type: none"> • How to calculate the area of rectangles and squares. • How to calculate the area of circles and semicircles. • How to round numbers to the nearest whole number, 1 and 2 decimal places. 	<p style="text-align: center;">Area</p> <p style="text-align: center;">Area of Circles</p> <p style="text-align: center;">Rounding to a Given Number of Decimal Places</p>	Area of Compound Shapes	Area of Compound Shapes – Alphabet Area
		How to calculate the perimeter of simple shapes such as rectangles, squares and triangles.		Perimeter of Composite Shapes	Perimeter of Compound Shapes – Puzzling Perimeters
	Draw and measure line segments and angles in geometric figures, including interpreting scale drawings.	You will need a pencil and ruler for this sheet.		Drawing and Measuring Line Segments	Drawing Line Segments – Solve the Riddles
		<ul style="list-style-type: none"> • Be able to use a ruler to draw straight lines. • You will need a protractor, ruler and pencil to complete the sheet. 	Drawing and Measuring Line Segments	Drawing and Measuring Angles	Angles – The Geometry of Numbers
		<ul style="list-style-type: none"> • Be able to accurately draw and measure line segments using a ruler. • Multiplication and division. 	Drawing and Measuring Line Segments	Scale Drawings	Converting Scale Measurements into Real-Life Measurements
	Derive and 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); recognise and use the perpendicular distance from a point to a line as the shortest distance to the line.	<ul style="list-style-type: none"> • Be able to accurately draw and measure line segments using a ruler. 	Drawing and Measuring Line Segments	Perpendicular Bisectors	Perpendicular Bisectors – Postal Perplexity
		You will need a pencil, ruler and pair of compasses to complete the sheet.			
		<ul style="list-style-type: none"> • Be confident in how to use a ruler and a pair of compasses. 	Drawing and Measuring Line Segments	Loci from a Given Point	Loci Treasure Hunt
		<ul style="list-style-type: none"> • How to draw and measure angles using a protractor. 	Drawing and Measuring Angles	Angle Bisectors	Perpendicular and Angle Bisectors – Worded Constructions

Subject Content: Geometry and Measures	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.	Geometry and Measure Vocabulary			Geometry and Measure Vocabulary – Conundrums
		<ul style="list-style-type: none"> A basic understanding of rotational symmetry. You will also need some tracing paper to complete the questions.		Rotational Symmetry	Rotational Symmetry – You Spin Me Round
		<ul style="list-style-type: none"> A basic understanding of line symmetry. 	Drawing and Measuring Line Segments	Lines of Symmetry	Lines of Symmetry – Symmetrical Patterns
	Use the standard conventions for labelling the sides and angles of triangles ABC, and know and use the criteria for congruence of triangles.	<ul style="list-style-type: none"> An understanding of rotation, reflection and translations. Knowledge of the hypotenuse in right-angled triangles.		An Introduction to Congruence	An Introduction to Congruence – Odd One Out
	Derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures (for example, equal lengths and angles) using appropriate language and technologies.	Parts of a Circle			Parts of a Circle – Puzzle
	Identify properties of, and describe the results of, translations, rotations and reflections applied to given figures.	<ul style="list-style-type: none"> Draw lines of $x = n$, $y = n$ and $y = x$. 	Straight-Line Graphs	Transformations: Reflections Worksheet	Transformation: Reflection – Create the Picture
		<ul style="list-style-type: none"> How to read and write coordinates in 4 quadrants. It might help to have some tracing paper for this activity.	Coordinates in 4 Quadrants	Rotation Worksheet	Translation and Rotation – Transformation Tower
		<ul style="list-style-type: none"> How to read and write coordinates in 4 quadrants. 	Coordinates in 4 Quadrants	Translations	Translation and Rotation – Transformation Tower
		<ul style="list-style-type: none"> Multiplication and division. Be able to accurately draw and measure line segments using a ruler. 	Drawing and Measuring Line Segments	Transformations: An Introduction to Enlargements	Enlargements – Packing Boxes

Subject Content: Geometry and Measures	Identify and construct congruent triangles, and construct similar shapes by enlargement, with and without coordinate grids.	<ul style="list-style-type: none"> How to draw and measure an angle using a protractor. Be able to label the sides and angles of triangles. 	Drawing and Measuring Angles	Constructing Triangles (with a Protractor)	Constructing Triangles (with a Protractor) – Geometric Figure
		<ul style="list-style-type: none"> Be able to accurately draw and measure line segments using a ruler. <p>You will need a pencil, ruler and pair of compasses to complete the sheet.</p>	Drawing and Measuring Line Segments	Constructing Triangles	Constructing Triangles – Investigation
	Apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles.	<ul style="list-style-type: none"> Be able to form and solve linear equations. Be able to apply all four operations to positive and negative numbers. 	Solving Equations with One Variable	Angle Properties	Angle Properties – Diagram Dilemmas
	Understand and use the relationship between parallel lines and alternate and corresponding angles.	<ul style="list-style-type: none"> Angles on straight lines. Angles in triangles. 	Angle Properties	Angles in Parallel Lines	Angles in Parallel Lines – A Parallel Problem
	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.	<ul style="list-style-type: none"> Substitution. Be able to apply all four operations to positive and negative numbers. Angles on straight lines. 	Angle Properties	Angles in Polygons	Angles in Polygons – A Polygonal Problem
	Apply angle facts, triangle congruence, similarity and properties of quadrilaterals to derive results about angles and sides, including Pythagoras' theorem, and use known results to obtain simple proofs.		<ul style="list-style-type: none"> How to round numbers to whole numbers, significant figures as well as 1 and 2 decimal places. Substituting into formulae. Rearranging formulae 	Rearranging Formulae Substituting into Formulae Rounding to the Nearest 10, 100 and 1000 Rounding to Significant Figures Rounding to a Given Number of Decimal Places	Pythagoras' Theorem
<ul style="list-style-type: none"> Multiplication and division. 			Short Division	Similar Shapes	

Subject Content: Geometry and Measures	<ul style="list-style-type: none"> • Substitution. • Confidently use a calculator. • Rounding numbers to 1 decimal place. 	Rounding to a Given Number of Decimal Places	Trigonometry Missing Sides	Trigonometry – Missing Sides Loop Puzzle
	<p>Use Pythagoras’ theorem and trigonometric ratios in similar triangles to solve problems involving right-angled triangles.</p> <ul style="list-style-type: none"> • How to round numbers to whole numbers, significant figures as well as 1 and 2 decimal places. • Substituting into formulae. • Rearranging formulae. 	Rearranging Formulae Substituting into Formulae Rounding to the Nearest 10, 100 and 1000 Rounding to Significant Figures Rounding to a Given Number of Decimal Places	Pythagoras’ Theorem	Pythagoras’ Theorem – Triangle Tangle
	<p>Use the properties of faces, surfaces, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres to solve problems in 3D.</p>	3D Shapes		
<p>Interpret mathematical relationships both algebraically and geometrically.</p>	<ul style="list-style-type: none"> • Simplifying an algebraic expression. • Expanding single and double brackets. • Forming and solving equations. • Finding the area and perimeter of a triangle, quadrilateral, circle or compound shape. • Finding a missing angle on a line, about a point or in a triangle. • Finding a missing side or angle in similar shapes. 	Simplifying Terms Expanding Single Brackets Forming and Solving Equations	Algebra and Geometric Relationships	Algebra and Geometric Relationships

	Pupils should be taught to:	Prior Knowledge Needed	Try This First	Resource	Mastery Task
Subject Content: Probability	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.	<ul style="list-style-type: none"> • Adding and subtracting decimals. • Writing fractions. 	Addition: Column Method Subtraction: Column Method	An Introduction to Probability	An Introduction to Probability – Misconceptions
	Understand that the probabilities of all possible outcomes sum to 1.	<ul style="list-style-type: none"> • Be able to calculate probabilities of independent events. • Enter discrete data in tables. 	An Introduction to Probability	Relative Frequency	Number Search Puzzle – Relative Frequency
	Enumerate sets and unions/intersections of sets systematically, using tables, grids and Venn diagrams.	<ul style="list-style-type: none"> • Be able to calculate probabilities of independent events. 	An Introduction to Probability	Introduction to Venn Diagrams	Venn Diagram Generator – KS3 Maths
	Generate theoretical sample spaces for single and combined events with equally likely, mutually exclusive outcomes and use these to calculate theoretical probabilities.	<ul style="list-style-type: none"> • Be able to calculate probabilities of independent events. 	An Introduction to Probability	Sample Space Diagrams	Sample Space Diagrams – The Horse Race Game

Subject Content: Statistics	Pupils should be taught to:	Prior Knowledge Needed	Try This First	Resource	Mastery Task
	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).	<ul style="list-style-type: none"> The different types of data. How data can be collected. 	<p>Calculating Averages and Measures of Spread</p>	<p>Calculating Averages and Measures of Spread</p>	<p>Averages – Perplexing Problems Calculating the Mean – A Mean Square</p>
	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.	<ul style="list-style-type: none"> Be able to calculate the mean average of a set of data. Be able to apply all four operations to positive and negative numbers. Round numbers to decimal places. 	<p>Rounding to a Given Number of Decimal Places Calculating Averages and Measures of Spread</p>	<p>Reverse Mean</p>	<p>Reverse Mean – Problem Solving</p>
	Describe simple mathematical relationships between two variables (bivariate data) in observational and experimental contexts and illustrate using scatter graphs.	<ul style="list-style-type: none"> How to find fractions of amounts. Best used as revision of tally charts, bars charts and pictograms. How to draw angles using a protractor. Simplifying fractions. Rounding numbers to the nearest whole number. 	<p>Calculations with Fractions Drawing and Measuring Angles Rounding to the Nearest 10, 100 and 1000</p>	<p>Tally Charts, Bar Charts and Pictograms Pie Charts</p>	<p>Tally Charts, Bar Charts and Pictograms – Fill the Gaps Pie Charts – Which Pie Chart?</p>
	<ul style="list-style-type: none"> Be able to read and plot coordinates. Be able to draw a line of best fit using a ruler. 	<p>Drawing and Measuring Line Segments Coordinates in 4 Quadrants</p>	<p>Scatter Graphs</p>	<p>Scatter Graphs – Making Predictions</p>	