

Dothill Progression Mapping



Mathematics

Respect Happiness Responsibility Creativity HONESTY Enthusiasm Confidence Kindness Cooperation fairness

NB: Text in red font is taken from the RTP criteria

	Year Five	Year Six
<p>Declarative</p> <p>I know that...</p> <p>(facts)</p>	<p>Number & Place Value</p> <ul style="list-style-type: none"> ✓ I know the relationship between powers of 10 from 1 hundredth to 1,000 in terms of grouping and exchange (for example, 1 is equal to 10 tenths) and in terms of scaling (for example, 1 is ten times the size of 1 tenth). ✓ I know and can recognise the place value of each digit in numbers with units from thousands to hundredths and compose and decompose these numbers using standard and non-standard partitioning. ✓ I know and understand the linear number system, and can use this to reason about the location of number between 0.01 and 9,999. ✓ I know what 1000 divided into 100 and 1 into 2, 4, 5 and 10 equal parts is, and read scales/number lines with 2, 4, 5 and 10 equal parts. 	<p>Number & Place Value</p> <ul style="list-style-type: none"> ✓ I know and understand the relationship between powers of 10 from 1 hundredth to 10 million, ✓ I know the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non-standard partitioning. ✓ I know that rounding can be used to estimate calculations. ✓ I know that negative numbers are less than zero and can use negative numbers in context.
<p>Procedural</p> <p>I know how to...</p> <p>(methods)</p> <p>In addition to Dothill Calculation Policy</p>	<p>Number & Place Value</p> <ul style="list-style-type: none"> ✓ Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1. Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01. Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01. ✓ Recognise the place value of each digit in numbers with up to 2 decimal places, and compose and decompose numbers with up to 2 decimal places using standard and non-standard partitioning. ✓ Reason about the location of any number with up to 2 decimal places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each. ✓ Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts. ✓ Convert between units of measure, including using common decimals and fractions. ✓ Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero ✓ Count forwards or backwards in steps of powers of 10 for any given number up to 1000 000 ✓ Read, write, order and compare numbers to at least 1000000 and determine the value of each digit (appears also in Reading and Writing Numbers) ✓ Read, write, order and compare numbers to at least 1000000 and determine the value of each digit (appears also in Comparing Numbers) ✓ Read Roman numerals to 1000 (M) and recognise years written in Roman numerals. ✓ Read, write, order and compare numbers to at least 1000000 and determine the value of each digit (appears also in Reading and Writing Numbers) ✓ Round any number up to 1000000 to the nearest 10, 100, 1000, 10 000 and 100 000 ✓ Solve number problems and practical problems that involve all of the above 	<p>Number & Place Value</p> <ul style="list-style-type: none"> ✓ Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000). ✓ Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non-standard partitioning. ✓ Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts. ✓ Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts. ✓ Use negative numbers in context, and calculate intervals across zero ✓ Read, write, order and compare numbers up to 10 000000 and determine the value of each digit (appears also in Reading and Writing Numbers) ✓ Round any whole number to a required degree of accuracy ✓ Solve number and practical problems that involve all of the above

Vocabulary	Ten thousands Hundred thousands Millions Context Steps of powers Decimal equivalents Two decimal places Thousandths Numbers up to one million	Intervals across zero Three decimal places Hundredths Thousandths Ten thousandths Numbers up to ten million
Declarative I know that... (facts)	<u>Number Facts</u> <ul style="list-style-type: none"> ✓ I know and can recall multiplication and division facts up to 12×12 ✓ I know and can apply place value knowledge to know additive and multiplicative facts. 	<u>Number Facts</u>
Procedural I know how to... (methods) In addition to Dohill Calculation Policy	<u>Number Facts</u> <ul style="list-style-type: none"> ✓ Secure fluency in multiplication table facts, and corresponding division facts, through continued practice. ✓ Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth). 	<u>Number Facts</u>
Vocabulary		
Declarative I know that... (facts)	<u>Addition & Subtraction</u> <ul style="list-style-type: none"> ✓ I know that addition and subtraction are inverse operations and can use this fact to manipulate additive equations. 	<u>Addition & Subtraction</u> <ul style="list-style-type: none"> ✓ I know that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number). ✓ I know the order of operations and use this to carry out calculations involving the four operations ✓ I know to use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. ✓ I know vocabulary commonly associated with the four operations and use this to identify the operations required when solving contextualised problems.
Procedural I know how to... (methods) In addition to Dohill Calculation Policy	<u>Addition & Subtraction</u> <ul style="list-style-type: none"> ✓ Add and subtract numbers mentally with increasingly large numbers ✓ Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) ✓ Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy ✓ Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why 	<u>Addition & Subtraction</u> <ul style="list-style-type: none"> ✓ Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number). ✓ Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding. ✓ Solve problems involving ratio relationships. ✓ Solve problems with 2 unknowns. ✓ Perform mental calculations, including with mixed operations and large numbers ✓ Use their knowledge of the order of operations to carry out calculations involving the four operations ✓ Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. ✓ Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why ✓ Solve problems involving addition, subtraction, multiplication and division

Vocabulary	Increasingly large numbers More than 4 digits Rounding Determine Context Multi-step problems	Estimation Mixed operations
Declarative I know that... (facts)	Multiplication & Division <ul style="list-style-type: none"> ✓ I know that multiplication and division are inverse operations and can use this to manipulate multiplicative equations. ✓ I know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers ✓ I know that square numbers are the product of a number multiplied by itself, eg $25 = 5 \times 5$ ✓ I know that cubed numbers are the product of a number multiplied by itself multiplied by itself, eg $8 = 2 \times 2 \times 2$ ✓ I know the prime numbers to 30 	Multiplication & Division <ul style="list-style-type: none"> ✓ I know that 2 numbers can be related additively or multiplicatively ✓ I know that a given additive or multiplicative calculation can be used to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding. ✓ I know that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number). ✓ I know that mental calculations can be a more efficient method than more formal methods. ✓ I know that fractions have decimal equivalents. ✓ I know what common factors, common multiples and prime numbers are. ✓ I know the prime numbers to 100. ✓ I know that factors can be simplified by using common factors.
Procedural I know how to... (methods) In addition to Dothill Calculation Policy	Multiplication & Division <ul style="list-style-type: none"> ✓ Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size. ✓ Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors. ✓ Multiply any whole number with up to 4 digits by any one-digit number using a formal written method. ✓ Divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context. ✓ Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 ✓ Multiply and divide numbers mentally drawing upon known facts ✓ Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 ✓ Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers ✓ 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 ✓ Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. ✓ Establish whether a number up to 100 is prime and recall prime numbers up to 19 ✓ Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) ✓ Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes ✓ Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign ✓ Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates 	Multiplication & Division <ul style="list-style-type: none"> ✓ Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding. ✓ Solve problems involving ratio relationships. ✓ Solve problems with 2 unknowns. ✓ Perform mental calculations, including with mixed operations and large numbers ✓ Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$) ✓ Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication ✓ Divide numbers up to 4-digits by a two-digit whole number using the formal written method of short division where appropriate for the context divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context ✓ Use written division methods in cases where the answer has up to two decimal places (copied from Fractions (including decimals)) ✓ Identify common factors, common multiples and prime numbers ✓ Use common factors to simplify fractions; use common multiples to express fractions in the same denomination (copied from Fractions) ✓ Calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm^3) and cubic metres (m^3), and extending to other units such as mm^3 and km^3 (copied from Measures) ✓ Use their knowledge of the order of operations to carry out calculations involving the four operations ✓ Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy ✓ Solve problems involving addition, subtraction, multiplication and division ✓ Solve problems involving similar shapes where the scale factor is known or can be found (copied from Ratio and Proportion)

Vocabulary	Decimals Four-digit Long multiplication Short division Remainders Context Common factors	Common Multiples Prime numbers Prime factors Composite numbers Square number Cube number Notation	Squares Cubes	Scale factor Long division Whole number remainders Fractions Rounding Mixed operations
Declarative I know that... (facts)	Fractions <ul style="list-style-type: none"> ✓ I know locations of fractions and mixed numbers in the linear number system. ✓ I know that fractions can be equivalent and can use multiplication and division facts to find these. 	Fractions <ul style="list-style-type: none"> ✓ I know that common factors can be used to simplify fractions. ✓ I know that fractions can have equivalent fractions and can use multiplication and division facts to find these. ✓ I know place values to 10million ✓ I know that fractions can be associated with division and can use this to calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$) ✓ I know and can recall equivalences between simple fractions, decimals and percentages, including in different contexts. 		
Procedural I know how to... (methods) In addition to Dothill Calculation Policy	Fractions <ul style="list-style-type: none"> ✓ Find non-unit fractions of quantities. ✓ Find equivalent fractions and understand that they have the same value and the same position in the linear number system. ✓ Recall decimal fraction equivalents for $\frac{1}{2}$, $\frac{1}{4}$, $1/5$ and $1/10$ and for multiples of these proper fractions. ✓ Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents (appears also in Equivalence) ✓ Compare and order fractions whose denominators are all multiples of the same number ✓ Read, write, order and compare numbers with up to three decimal places ✓ Round decimals with two decimal places to the nearest whole number and to one decimal place ✓ Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths ✓ Read and write decimal numbers as fractions (e.g. $0.71 = \frac{71}{100}$) ✓ Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents ✓ Recognise the per cent symbol (%) and understand that per cent relates to "number of parts per hundred", and write percentages as a fraction with denominator 100 as a decimal fraction ✓ Add and subtract fractions with the same denominator and multiples of the same number ✓ Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$) ✓ Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams ✓ Solve problems involving numbers up to three decimal places ✓ Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those with a denominator of a multiple of 10 or 25. 	Fractions <ul style="list-style-type: none"> ✓ Recognise when fractions can be simplified, and use common factors to simplify fractions. ✓ Express fractions in a common denominator and use this to compare fractions that are similar in value. ✓ Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denominator as a comparison strategy. ✓ Compare and order fractions, including fractions > 1 ✓ Identify the value of each digit in numbers given to three decimal places ✓ Solve problems which require answers to be rounded to specified degrees of accuracy ✓ Use common factors to simplify fractions; use common multiples to express fractions in the same denominator ✓ Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$) ✓ Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. ✓ Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions ✓ Multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$) ✓ Multiply one-digit numbers with up to two decimal places by whole numbers ✓ Divide proper fractions by whole numbers (e.g. $\frac{1}{3} \div 2 = \frac{1}{6}$) ✓ Multiply one-digit numbers with up to two decimal places by whole numbers ✓ Multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places ✓ Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places ✓ Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$) ✓ Use written division methods in cases where the answer has up to two decimal places 		

Vocabulary	Thousandths Multiples Three decimal places Percent Number of parts per hundred Percentages	Decimal fraction Mixed numbers Improper fraction Proper fraction Convert Mathematical statements	Multiply Percentage and decimal equivalents	Common factors Common multiples Decimal fraction equivalents Simplest form																		
Declarative I know that... (facts)	<u>Ratio & Proportion</u>			<u>Ratio & Proportion</u> <ul style="list-style-type: none"> ✓ I know that ratio is related to fractions ✓ I know that scale factors enlarge a shape by multiplying the scale factor and each side of the shape. ✓ I know that percentage is 'per 100'. 																		
Procedural I know how to... (methods) In addition to Dothill Calculation Policy	<u>Ratio & Proportion</u>			<u>Ratio & Proportion</u> <ul style="list-style-type: none"> ✓ Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts ✓ Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison ✓ Solve problems involving similar shapes where the scale factor is known or can be found ✓ Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. 																		
Vocabulary				<table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">Ratio</td> <td style="width: 33%;">Multiplication</td> <td style="width: 33%;">Percentage</td> </tr> <tr> <td>Proportion</td> <td>Division</td> <td>Comparison</td> </tr> <tr> <td>Size</td> <td>Multiply</td> <td>Unequal sharing</td> </tr> <tr> <td>Quantity</td> <td>Divide</td> <td>Grouping</td> </tr> <tr> <td>Missing value</td> <td>Solve</td> <td>Fractions</td> </tr> <tr> <td>Integer</td> <td>Problem</td> <td>Multiples</td> </tr> </table>	Ratio	Multiplication	Percentage	Proportion	Division	Comparison	Size	Multiply	Unequal sharing	Quantity	Divide	Grouping	Missing value	Solve	Fractions	Integer	Problem	Multiples
Ratio	Multiplication	Percentage																				
Proportion	Division	Comparison																				
Size	Multiply	Unequal sharing																				
Quantity	Divide	Grouping																				
Missing value	Solve	Fractions																				
Integer	Problem	Multiples																				
Declarative I know that... (facts)	<u>Measurement</u> <ul style="list-style-type: none"> ✓ I know the conversion rates between metric units. ✓ I know the conversion rates from metric to imperial and vice versa. 			<u>Measurement</u> <ul style="list-style-type: none"> ✓ I know that 8km is approximately equal to 5miles 																		

<p>Procedural I know how to... (methods) In addition to Dothill Calculation Policy</p>	<p>Measurement</p> <ul style="list-style-type: none"> ✓ Calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes (also included in measuring) ✓ Estimate volume (e.g. using 1 cm³ blocks to build cubes and cuboids) and capacity (e.g. using water) ✓ Use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling. ✓ Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres ✓ Calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes ✓ <i>Recognise and use square numbers and cube numbers, and the notation for squared ()² and cubed ()³</i> ✓ (copied from Multiplication and Division) ✓ Solve problems involving converting between units of time ✓ Convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) ✓ Solve problems involving converting between units of time ✓ Understand and use equivalences between metric units and common imperial units such as inches, pounds and pints 		<p>Measurement</p> <ul style="list-style-type: none"> ✓ Calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm³) and cubic metres (m³), and extending to other units such as mm³ and km³. ✓ Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate (appears also in Converting) ✓ Recognise that shapes with the same areas can have different perimeters and vice versa ✓ Calculate the area of parallelograms and triangles ✓ Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending to other units [e.g. mm³ and km³]. ✓ Recognise when it is possible to use formulae for area and volume of shapes ✓ Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places ✓ Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate (appears also in Measuring and Calculating) ✓ Convert between miles and kilometres
<p>Vocabulary</p>	<p>Square centimetres (cm²) Square metres (m²) Irregular shapes Volume (cm³) Cubes</p>	<p>Cuboids Square numbers Cube numbers Metric measure Metric units</p>	<p>Imperial units Inches Pounds Pints</p> <p>Decimal notation Cubic centimetres (cm³) Cubic metres (m³) Cubic millimetre (mm³)</p> <p>Cubic kilometre (Km³) Decimal places formulae Miles</p>
<p>Declarative I know that... (facts)</p>	<p>Statistics</p>		<p>Statistics</p>
<p>Procedural I know how to... (methods) In addition to Dothill Calculation Policy</p>	<p>Statistics</p> <ul style="list-style-type: none"> ✓ Complete, read and interpret information in tables, including timetables ✓ Solve comparison, sum and difference problems using information presented in a line graph 		<p>Statistics</p> <ul style="list-style-type: none"> ✓ Interpret and construct pie charts and line graphs and use these to solve problems ✓ Calculate and interpret the mean as an average
<p>Vocabulary</p>	<p>Timetables Line graph</p>		<p>Pie chart Calculate Mean Average</p>

<p>Declarative</p> <p>I know that...</p> <p>(facts)</p>	<p><u>Algebra</u></p>			<p><u>Algebra</u></p>		
	<p><u>Algebra</u></p> <ul style="list-style-type: none"> ✓ Use the properties of rectangles to deduce related facts and find missing lengths and angles (copied from Geometry: Properties of Shapes) 			<p><u>Algebra</u></p> <ul style="list-style-type: none"> ✓ Express missing number problems algebraically ✓ Find pairs of numbers that satisfy number sentences involving two unknowns ✓ Enumerate all possibilities of combinations of two variables ✓ Use simple formulae ✓ Recognise when it is possible to use formulae for area and volume of shapes (copied from Measurement) ✓ Generate and describe linear number sequences 		
<p>Vocabulary</p>	<p>Properties Rectangles Deduce</p>	<p>Related facts Missing lengths Missing angles</p>		<p>Missing number Problem Pairs Number sentence Variables</p>	<p>Combination Possibility Enumerate Equation Formulae</p>	<p>Generate Linear number sequence</p>
<p>Declarative</p> <p>I know that...</p> <p>(facts)</p>	<p><u>Geometry</u></p> <ul style="list-style-type: none"> ✓ I know that angles are measured in degrees ($^{\circ}$) ✓ I know what acute, obtuse and reflex angles are and can identify them. ✓ I know what area and perimeter are. ✓ I know that angles in a straight line add to 180°. ✓ I know that angles in a whole turn is equal to 360° 			<p><u>Geometry</u></p> <ul style="list-style-type: none"> ✓ I know that a circle's diameter is twice that of its radius. ✓ I know that diameter, radius and circumference are parts of a circle and can identify them. 		
<p>Procedural</p> <p>I know how to...</p> <p>(methods)</p> <p>In addition to Dothill Calculation Policy</p>	<p><u>Geometry</u></p> <ul style="list-style-type: none"> ✓ Compare angles, estimate and measure angles in degrees ($^{\circ}$) and draw angles of a given size. ✓ Compare areas and calculate the area of rectangles (including squares) using standard units. ✓ Identify 3-D shapes, including cubes and other cuboids, from 2-D representations ✓ Draw given angles, and measure them in degrees ($^{\circ}$) ✓ Use the properties of rectangles to deduce related facts and find missing lengths and angles ✓ Distinguish between regular and irregular polygons based on reasoning about equal sides and angles ✓ Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles ✓ Identify: <ul style="list-style-type: none"> ✓ angles at a point and one whole turn (total 360°) ✓ angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°) ✓ other multiples of 90° ✓ Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed 			<p><u>Geometry</u></p> <ul style="list-style-type: none"> ✓ Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems. ✓ Recognise, describe and build simple 3-D shapes, including making nets (appears also in Drawing and Constructing) ✓ Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius ✓ Draw 2-D shapes using given dimensions and angles ✓ Recognise, describe and build simple 3-D shapes, including making nets (appears also in Identifying Shapes and Their Properties) ✓ Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons ✓ Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles ✓ Describe positions on the full coordinate grid (all four quadrants) ✓ Draw and translate simple shapes on the coordinate plane, and reflect them in the axes. 		
<p>Vocabulary</p>	<p>Reflection Angles Measure Degrees Missing lengths Missing angles</p>	<p>Regular polygons Irregular polygons Degrees Estimate compare Reflex angle</p>	<p>Point Straight line Multiples</p>	<p>Four quadrants Radius Diameter Circumference Nets</p>		

<p>Conditional I know when...& I know why... (strategies)</p>	<p><u>Addition & Subtraction</u></p> <ul style="list-style-type: none"> ✓ I know when a problem has multi parts that I am required to work out. ✓ I know why a problem is a multi-step problem and can explain this ✓ I know when to use the most efficient written or mental calculation to solve a problem ✓ I know why I have selected a specific written or mental calculation to solve a problem and can explain ✓ I know when to use the most efficient method for solving addition and subtraction problems ✓ I know why I have selected specific methods to solve my problem 	<p><u>Addition & Subtraction</u></p> <ul style="list-style-type: none"> ✓ I know when a problem, in a range of contexts, has multi parts that I am required to work out ✓ I know why a problem is a multi-step problem and can explain this with confidence and justify ✓ I know when to use the most efficient written or mental calculation to solve a problem in a range of contexts ✓ I know why I have selected a specific written or mental calculation to solve a problem and can explain and justify my reasoning ✓ I know when to use the most efficient method for solving addition and subtraction problems ✓ I know why I have selected specific methods to solve my problem and can explain with confidence
	<p><u>Multiplication & Division</u></p> <ul style="list-style-type: none"> ✓ I know when to use knowledge of factors, multiplies, squares and cubes to solve a multiplication and division question ✓ I know why I have selected to use knowledge of factors, multiplies, squares and cubes to solve a multiplication and division question ✓ I know when to use a mental calculation or written method to solve more challenging problems ✓ I know why I have chosen to a mental calculation or written method to solve more challenging problems 	<p><u>Multiplication & Division</u></p> <ul style="list-style-type: none"> ✓ I know when a problem, in a range of contexts, has multi parts that I am required to work out multiplication or division ✓ I know why a problem is a multi-step problem and can explain this with confidence and justify ✓ I know when to use the most efficient written or mental calculation to solve a problem in a range of contexts ✓ I know why I have selected a specific written or mental calculation to solve a problem and can explain and justify my reasoning ✓ I know when to use the most efficient method for solving multiplication and division problems ✓ I know why I have selected specific methods to solve my problem and can explain with confidence
	<p><u>Fractions</u></p> <ul style="list-style-type: none"> ✓ I know when to use my fraction knowledge to solve a more complex problem ✓ I know why I have selected to use fractions to solve a problem. ✓ I know when to use my knowledge of percentages to solve a problem up to three decimal places ✓ I know why I am using my knowledge of percentages to solve a problem up to three decimal places 	<p><u>Fractions</u></p> <ul style="list-style-type: none"> ✓ I know when to use my fraction knowledge to solve a more complex problem in a range of context ✓ I know why I have selected to use fractions to solve a problem. ✓ I know when an answer requires to be rounded to specified degrees of accuracy ✓ I know why I am rounding to specified degrees of accuracy to give an answer
	<p><u>Statistics</u></p> <ul style="list-style-type: none"> ✓ I know when to complete, read or interpret tables to solve a problem ✓ I know why I am completing, reading or interpreting data in a table to solve a problem 	<p><u>Statistics</u></p> <ul style="list-style-type: none"> ✓ I know when to construct a pie chart or line graph to solve a problem ✓ I know when I have selected to use a pie chart or a line graph to solve a problem ✓ I know when to interpret a pie chart or line graph to solve a problem ✓ I know why I have selected to interpret pie chart or a line graph to solve a problem

<p>EYFS</p> <p>Number & Place Value</p> <p>One more One less Place Order Number Count Numbers up to twenty Number line Pictorial Answer Equals Read Write</p> <p>Addition & Subtraction</p> <p>Add Subtract Addition Subtraction Adding Subtracting Number Number line Single digit Count on Count back Answer Doubling Halving Sharing Numbers to twenty Check</p> <p>Multiplication & Division</p> <p>sharing doubling halving number pattern</p> <p>Measurement</p> <p>Measure Measurement Size Weight Capacity Compare Solve Problems Object Time</p> <p>Geometry</p> <p>Position</p>	<p>Year 1</p> <p>Number & Place Value</p> <p>Forwards Backwards Numerals Words Multiples Equal to More than Less than Fewer Most Least Identify Represent Digit Calculate Odd Even Pattern Numbers up to one hundred</p> <p>Addition & Subtraction</p> <p>One step problem Concrete object Pictorial representation Missing number Problem Read Write Interpret Equals = Signs One-digit Two-digit Ones Mental Mentally</p> <p>Multiplication & Division</p> <p>Multiples Twos Fives Tens Number Multiply Divide Multiplication Division One step problem Answer Concrete object Pictorial representation Arrays</p>	<p>Year 2</p> <p>Number & Place Value</p> <p>Ones Tens Two- digit Estimate Place Value Solve Problems Greater than > Less than < Nearest ten Number facts Partition Count in steps Zero Compare Determine Value</p> <p>Addition & Subtraction</p> <p>Columnar addition Columnar Subtraction Tens Order Inverse Relationship Calculation Solve problems Missing number problems Quantities Measures Formal Written method Mental method Operation Apply Whole number</p> <p>Multiplication & Division</p> <p>Multiplication facts Division facts Multiplication tables Odd numbers Even numbers Share Equally Repeated division Calculate</p> <p>Measurement</p> <p>Greater than > Less than < Equals = Intervals Standard units Estimate Direction</p>	<p>Year 3</p> <p>Number & Place Value</p> <p>Hundreds Three- digit ten more one hundred more ten less one hundred less Roman numeral Numbers up to one thousand</p> <p>Addition & Subtraction</p> <p>Three-digit number Hundreds Estimate Number facts</p> <p>Multiplication & Division</p> <p>Missing number problem Estimate Inverse Formal written method Mathematical statement Recall Integer Two- digit</p> <p>Measurement</p> <p>Duration Time taken Nearest minute Record Seconds a.m. p.m. noon midnight kilometre add subtract millimetres perimeter simple 2-D shapes analogue clock roman numerals 12-hour 24-hour Leap year</p> <p>Geometry</p> <p>Angle Turn Right angles Quarter of a turn Half-turn Three quarters of a turn Complete turn Horizontal lines Vertical lines Perpendicular lines Parallel lines</p> <p>Fractions, Decimals & Percentages</p>	<p>Year 4</p> <p>Number & Place Value</p> <p>Thousands Four- digit Negative number One thousand more One thousand less Decimal Decimal place Rounding Place holder Nearest ten Nearest hundred Nearest thousand One place Whole number Integer Tenths Hundredths</p> <p>Addition & Subtraction</p> <p>Two step problems Context Four-digit</p> <p>Multiplication & Division</p> <p>Derived facts Factors Factor pairs Scaling problems Three-digit</p> <p>Measurement</p> <p>Estimate Rectilinear figure Area Rectilinear shapes Convert</p> <p>Geometry</p> <p>Co-ordinates Quadrant Grid Translate Translation Axis X- axis Y-axis Spaces Unit Plot Point Polygon Lines of symmetry Symmetric figure Classify Geometric shapes</p>	<p>Year 5</p> <p>Number & Place Value</p> <p>Ten thousands Hundred thousands Millions Context Steps of powers Decimal equivalents Two decimal places Thousandths Numbers up to one million</p> <p>Addition & Subtraction</p> <p>Increasingly large numbers More than 4 digits Rounding Determine Context Multi-step problems</p> <p>Multiplication & Division</p> <p>Decimals Four-digit Long multiplication Short division Remainders Context Common factors Common Multiples Prime numbers Prime factors Composite numbers Square number Cube number Notation Squares Cubes</p> <p>Measurement</p> <p>Square centimetres (cm²) Square metres (m²) Irregular shapes Volume (cm³) Cubes Cuboids Square numbers Cube numbers Metric measure Metric units Imperial units Inches Pounds Pints</p> <p>Geometry</p> <p>Reflection Angles</p>	<p>Year 6</p> <p>Number & Place Value</p> <p>Intervals across zero Three decimal places Hundredths Thousandths Ten thousandths Numbers up to ten million</p> <p>Addition & Subtraction</p> <p>Estimation Mixed operations</p> <p>Multiplication & Division</p> <p>Scale factor Long division Whole number remainders Fractions Rounding Mixed operations</p> <p>Measurement</p> <p>Decimal notation Cubic centimetres (cm³) Cubic metres (m³) Cubic millimetre (mm³) Cubic kilometre (Km³) Decimal places formulae Miles</p> <p>Geometry</p> <p>Four quadrants Radius Diameter Circumference Nets</p> <p>Fractions, Decimals & Percentages</p> <p>Common factors Common multiples Decimal fraction equivalents Simplest form</p> <p>Statistics</p> <p>Pie chart Calculate Mean Average</p> <p>Algebra</p> <p>Missing number Problem Pairs</p>
---	--	---	---	--	--	--

	<p>Distance Direction Move Movement Patterns Shape Square Rectangle Circle Triangle Sides Straight side Curved side</p>	<p>Count Equals Write</p> <p><u>Measurement</u> Length Height Long Short Longer Shorter Tall Double Half Mass Heavy Light Heavier than Lighter than Volume Full Empty More than Less than Half Half full Quarter Quicker Slower Earlier Later Sequence events Chronological order Before After Next First Today Yesterday Tomorrow Morning Afternoon Evening Record Hours Minutes Hour Half past O clock Hands Clock face Seconds Coins Notes Dates Days Weeks</p>	<p>Temperature Unit Scales Rulers Thermometers Measuring vessels Metres Centimetres Kilograms Grams Degrees Celsius Litres Millilitres Symbols Money Pounds (£) Pence (p) Different combinations Change Five past Ten past Quarter past Twenty past Twenty-five past Half past Twenty-five to Twenty to Quarter to Ten to Five to</p> <p><u>Geometry</u> Rotation Right angle Clockwise Anti-clockwise Order Arrange Sequence Properties Compare Common Line symmetry Vertical line Edges Faces Vertices Pentagon Hexagon Heptagon Octagon Nonagon Decagon Kite Rhombus</p>	<p>Tenths Unit fractions Non- unit fractions Numerator Denominator Compare Order Add Subtract Solve problems</p> <p><u>Statistics</u> Present Presented Graph Statistics Bar charts Tables Solve One- step questions Two- step questions Information</p>	<p>Quadrilaterals Acute angle Obtuse angle</p> <p><u>Fractions, Decimals & Percentages</u> Hundredths Decimal Decimal place One decimal place Two decimal places Round decimals Whole number Common equivalent fractions Decimal equivalents Dividing Ones Tenths Hundredths Simple measure Money problems</p> <p><u>Statistics</u> Time graphs Comparison Problems</p> <p><u>Algebra</u> Perimeter Algebra Algebraically</p>	<p>Measure Degrees Missing lengths Missing angles Regular polygons Irregular polygons Degrees Estimate compare Reflex angle Point Straight line Multiples</p> <p><u>Fractions, Decimals & Percentages</u> Thousandths Multiples Three decimal places Per cent Number of parts per hundred Percentages Decimal fraction Mixed numbers Improper fraction Proper fraction Convert Mathematical statements Multiply Percentage and decimal equivalents</p> <p><u>Statistics</u> Timetables Line graph</p> <p><u>Algebra</u> Properties Rectangles Deduce Related facts Missing lengths Missing angles</p>	<p>Number sentence Variables Combination Possibility Enumerate Equation Formulae Generate Linear number sequence</p> <p><u>Ratio & Proportion</u> Ratio Proportion Size Quantity Missing value Integer Multiplication Division Multiply Divide Solve Problem Calculate Percentage Comparison Unequal sharing Grouping Fractions Multiples</p>
--	---	---	--	---	--	--	--

		<p>Months</p> <p><u>Geometry</u> Half turn Quarter turn Three-quarter turn Left Right Up Down 2-D Shapes 3-D Shapes Two-dimensional Three-dimensional Cuboid Cube Pyramid Cone Cylinder Sphere</p> <p><u>Fractions, Decimals & Percentages</u> Fraction Half Equal parts One whole Object Shape Quantity Quarter</p> <p><u>Algebra</u> Solve One -step problem Missing number Check Calculate problem Sequence Chronological</p>	<p>Polygon Square-based pyramid Triangular pyramid Triangular prism Rectangular prism Pentagonal prism Hexagonal prism Octagonal prism Octahedron Dodecahedron Tetrahedron Rectangular pyramid Pentagonal pyramid Hexagonal pyramid Octagonal pyramid</p> <p><u>Fractions, Decimals & Percentages</u> Simple fractions Equivalent equivalence Count</p> <p><u>Statistics</u> Interpret Construct Pictogram Tally chart Block diagrams Horizontal Vertical x- axis & y-axis key title chart title Simple tables Ask Answer Questions Counting Objects Category Sort Quantity Total Compare Data</p> <p><u>Algebra</u> Inverse Relationship Compare Order Arrange</p>				
--	--	---	---	--	--	--	--

			Pattern				
--	--	--	---------	--	--	--	--