

Mathematics National Curriculum Objective Overview



THURGOLAND

CHURCH OF ENGLAND PRIMARY SCHOOL



LEARNING TOGETHER
IN FAITH & JOY

EYFS

Mastering Number

Pupils will build on previous experiences of number from their home and nursery environments and further develop subitising and counting skills.

They will explore the composition of numbers **1, 2, 3, 4, 5**.

They will begin to compare sets of objects and use the language of comparison (more/less/greater/fewer)

Pupils will:

- Subitise different arrangements both structured and unstructured.
- Make different arrangements of numbers up to 5 and talk about what they can see to develop their conceptual subitising skills.
- Identify composition of numbers up to 5 e.g. 5 is made up of 4 and 1 or 3 and 2.
- Connect quantities and numbers to finger patterns and explore different ways of representing numbers on their fingers.
- Hear and join in with the counting sequence and connect this to the staircase pattern of the country numbers.
- Understand each number on the staircase is made of one more than the previous number.
- Develop counting skills and knowledge including: the last number in the count tells us 'how many' cardinality; to be accurate in counting, each thing must be counted once only and in any order; the need for 1:1 correspondence; understanding that anything can be counted including actions and sounds.
- Compare sets of objects by matching
- Develop to develop the language of 'whole' when talking about objects with have parts.

White Rose – Circles and Triangles

Talk about and explore 2D shapes (circles, triangles).

Use information and mathematical language 'sides, corners, straight, flat, round.'

Uses informal language and analogies, (e.g. heart-shaped and hand-shaped leaves), as well as mathematical terms to describe shapes.

Uses own ideas to make models of increasing complexity, selecting blocks needed, solving problems and visualising what they will build.

Responds to both informal language and common shape names.

Shows awareness of shape similarities and differences between objects.

Select shapes appropriately: flat surfaces for building, a triangular prism for a roof, etc.

Combine shapes to make new ones – an arch, a bigger triangle, etc.

White Rose – Shapes with 4 sides

Talk about and explore 2D shapes (rectangles, squares)

Use information and mathematical language 'sides, corners, straight, flat, round.'

Uses informal language and analogies, (e.g. heart-shaped and hand-shaped leaves), as well as mathematical terms to describe shapes.

Uses own ideas to make models of increasing complexity, selecting blocks needed, solving problems and visualising what they will build.

Responds to both informal language and common shape names.

Shows awareness of shape similarities and differences between objects.

Select shapes appropriately: flat surfaces for building, a triangular prism for a roof, etc.

Combine shapes to make new ones – an arch, a bigger triangle, etc.



Mastering Number

Pupils will continue to develop their subitising and counting skills and explore the composition of numbers **1, 2, 3, 4, 5, 6, 7, 8, 9, 10**. They will begin to identify when two sets are equal or unequal and connect two equal groups to doubles. They will begin to connect quantities to numerals.

Pupils will:

- Continue to develop their subitising skills for numbers within and beyond 5 and increasing connect quantities to numerals.
- Begin to identify missing parts for numbers within 5
- Explore the structure of the numbers 6 and 7, as '5 and a bit' and connect this to finger patterns.
- Focus on equal and unequal groups when comparing numbers.
- Understand that two equal groups can be called a double and connect this to finger patterns.
- Sort odd and even numbers according to their 'shape.'
- Continue to develop their understanding of the counting sequence and link cardinality and ordinality through the staircase pattern.
- Order numbers and play track games.
- Join in with verbal counts beyond 20, hearing the repeated pattern within the counting numbers.

White Rose – Manipulate, compose, decompose

Enjoys composing and decomposing shapes, learning which shapes combine to make other shapes.

Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.

White Rose – Explore 3D shapes

Talk about and explore 3D shapes (Enjoys partitioning and combining shapes to make new shapes with 2D and 3D shapes.

Attempts to create arches and enclosures when building, using trial and improvement to select blocks.

Shows awareness of shape similarities and differences between objects.

Select shapes appropriately: flat surfaces for building, a triangular prism for a roof, etc.

Combine shapes to make new ones – an arch, a bigger triangle, etc.

Mastering Number

Pupils will consolidate their counting skills, counting to larger numbers and developing a wide range of counting strategies. They will secure knowledge of number facts through varied practise.

Pupils will:

- Continue to develop their counting skills, counting larger sets as well as counting actions and sounds.
- Explore a range of representations of numbers, including the 10-frame and see how doubles can be arranged in a 10 frame.
- Compare quantities and numbers including sets of objects which have different attributes.

White Rose – Mass and Capacity

Make comparisons between objects relating to weight and capacity.

Compare weight and capacity.

In meaningful contexts, finds the heavier or lighter and more/less full of two items.

Enjoys tackling problems involving prediction and discussion of comparisons of length, weight or capacity, paying attention to fairness and accuracy.

Becomes familiar with measuring tools in everyday experiences and play.

White Rose – Length, height and time

Make comparisons between objects relating to size and length.

Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'

In meaningful contexts, finds the longer or shorter, full of two items.

Recalls a sequence of events in everyday life and stories.



- Continue to develop a sense of magnitude e.g. knowledge that '8 is quite a lot more than 2, but 4 is only a little bit more than 2.'
- Begin to generalise about 1 more than and 1 less than numbers within 10.
- Continue to identify when sets can be subitised and when counting is necessary.
- Develop conceptual subitising skills including when using a rekenrek.

Becomes familiar with measuring tools in everyday experiences and play. Is increasingly able to order and sequence events using everyday language related to time. Beginning to experience measuring time with timers and calendars.



Year 1

<p>Block 1 - Place Value within 10</p> <p>Read and write numbers from 1 to 20 in numerals and words. Given a number, identify one more and one less Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens</p>	<p>Block 2 - Addition and subtraction within 10</p> <p>Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs Add and subtract one-digit and two-digit numbers to 20, including zero</p>	<p>Block 3 - Shape</p> <p>Recognise and name common 2-D and 3-D shapes, including: 2-D shapes [for example, rectangles (including squares), circles and triangles] 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].</p>		
<p>Block 4 - Place Value within 20</p> <p>Read and write numbers from 1 to 20 in numerals and words. Given a number, identify one more and one less Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens</p>	<p>Block 5 - Addition and Subtraction within 20</p> <p>Represent and use number bonds and related subtraction facts within 20 Add and subtract one-digit and two-digit numbers to 20, including zero Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$</p>	<p>Block 6 - Place Value within 50</p> <p>Read and write numbers from 1 to 20 in numerals and words. Given a number, identify one more and one less Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens</p>	<p>Block 7 - Length and Height</p> <p>Compare, describe and solve practical problems for: Lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] Measure and begin to record the following: Lengths and heights</p>	<p>Block 8 - Mass and Volume</p> <p>Measure and begin to record the following: Mass/weight Capacity and volume Compare, describe and solve practical problems for: Mass/weight [for example, heavy/light, heavier than, lighter than] Capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]</p>



<p>Block 9 - Multiplication and Division Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens</p>	<p>Block 10 - Fractions Recognise, find and name a half as one of two equal parts of an object, shape or quantity Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.</p>	<p>Block 11 - Position and direction Describe position, direction and movement, including whole, half, quarter and three-quarter turns.</p>	<p>Block 12 - Place Value within 100 Read and write numbers from 1 to 20 in numerals and words. Given a number, identify one more and one less Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens</p>	<p>Block 13 - Money Recognise and know the value of different denominations of coins and notes</p>	<p>Block 14 - Time Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] Recognise and use language relating to dates, including days of the week, weeks, months and years Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. Measure and begin to record the following: Time (hours, minutes, seconds)</p>
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Statements in blue highlight the teacher assessment framework (2018)

Block 1 - Place Value	Block 2 - Addition and subtraction	Block 3 - Shape
<p>Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward</p> <p>Recognise the place value of each digit in a two-digit number (tens, ones) Identify, represent and estimate numbers using different representations, including the number line</p> <p>Compare and order numbers from 0 up to 100; use and = signs</p> <p>Read and write numbers to at least 100 in numerals and in words</p> <p>Use place value and number facts to solve problems.</p>	<p>Solve problems with addition and subtraction: Using concrete objects and pictorial representations, including those involving numbers, quantities and measures Applying their increasing knowledge of mental and written methods</p> <p>Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</p> <p>Add and subtract numbers using concrete objects, pictorial representations, and mentally, including:</p> <p>A two-digit number and ones</p> <p>A two-digit number and tens</p> <p>Two two-digit numbers</p> <p>Adding three one-digit numbers</p> <p>Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot</p> <p>Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</p> <p>TAF GDS</p> <p>Use reasoning about numbers and relationships to solve more complex problems and explain their thinking (e.g. $29 + 17 = 15 + 4 +$; 'together Jack and Sam have £14. Jack has £2 more than Sam. How much money does Sam have?' etc.)</p> <p>Solve unfamiliar word problems that involve more than one step (e.g. 'which has the most biscuits, 4 packets of biscuits with 5 in each packet or 3 packets of biscuits with 10 in each packet?')</p>	<p>Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line</p> <p>Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces</p> <p>Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]</p> <p>Compare and sort common 2-D and 3-D shapes and everyday objects.</p> <p>TAF GDS</p> <p>Describe similarities and differences of 2-D and 3-D shapes, using their properties (e.g. that two different 2-D shapes both have only one line of symmetry; that a cube and a cuboid have the same number of edges, faces and vertices, but different dimensions).</p>



<p>Block 4 - Multiplication and Division Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals (=) signs Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.</p> <p>TAF GDS Recall and use multiplication and division facts for 2, 5 and 10 and make deductions outside known multiplication facts</p>	<p>Block 5 - Money Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value Find different combinations of coins that equal the same amounts of money Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change</p>	<p>Block 6 - Fractions Recognise, find, name and write fractions $\frac{3}{4}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{4}{3}$ of a length, shape, set of objects or quantity Write simple fractions for example, $\frac{2}{6} = \frac{1}{3}$ and recognise the equivalence of $\frac{4}{2}$ and $\frac{2}{1}$.</p>	<p>Block 7 - Time Compare and sequence intervals of time Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times Know the number of minutes in an hour and the number of hours in a day. Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ($^{\circ}\text{C}$); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels</p>
<p>Block 8 - Statistics Interpret and construct simple pictograms, tally charts, block diagrams and simple tables Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity Ask and answer questions about totalling and comparing categorical data.</p> <p>TAF GDS Read scales where not all numbers on the scale are given and estimate points in between</p>	<p>Block 9 - Length and Height Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ($^{\circ}\text{C}$); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels Compare and order lengths, mass, volume/capacity and record the results using $>$, $<$ and $=$</p>	<p>Block 10 - Mass, capacity and temperature Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ($^{\circ}\text{C}$); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels Compare and order lengths, mass, volume/capacity and record the results using $>$, $<$ and $=$</p>	<p>Block 11 - Position and Direction Order and arrange combinations of mathematical objects in patterns and sequences Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise).</p>



Year 3

<p>Block 1 - Place Value</p> <p>Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number</p> <p>Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)</p> <p>Compare and order numbers up to 1000 Identify, represent and estimate numbers using different representations</p> <p>Read and write numbers up to 1000 in numerals and in words</p> <p>Solve number problems and practical problems involving these ideas.</p>		<p>Block 2 - Addition and subtraction</p> <p>Add and subtract numbers mentally, including:</p> <p>A three-digit number and ones</p> <p>A three-digit number and tens</p> <p>A three-digit number and hundreds</p> <p>Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction</p> <p>Estimate the answer to a calculation and use inverse operations to check answers</p> <p>Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</p>		<p>Block 3 – Multiplication and division</p> <p>Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.</p> <p>Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods</p> <p>Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.</p>	
<p>Block 4 - Length and Perimeter</p> <p>Measure, compare, add and subtract: lengths (m/cm/mm)</p> <p>Measure the perimeter of simple 2-D shapes</p>	<p>Block 5 - Fractions</p> <p>Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10</p> <p>Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators</p> <p>Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators</p> <p>Recognise and show, using diagrams, equivalent fractions with small denominators</p>			<p>Block 6 - Mass and capacity</p> <p>Measure, compare, add and subtract: mass (kg/g); volume/capacity (l/ml)</p>	
<p>Block 7 – Fractions (Adding and subtracting)</p> <p>Add and subtract fractions with the same denominator within one whole [for example, $\frac{7}{5} + \frac{7}{1} = \frac{7}{6}$]</p> <p>Compare and order unit fractions, and fractions with the same denominators</p>	<p>Block 8 - Money</p> <p>Add and subtract amounts of money to give change, using both £ and p in practical contexts</p>	<p>Block 9 - Time</p> <p>Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks</p> <p>Estimate and read time with increasing accuracy to the</p>	<p>Block 10 - Shape</p> <p>Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them</p> <p>Recognise angles as a property of shape or a description of a turn</p>	<p>Block 11 - Statistics</p> <p>Interpret and present data using bar charts, pictograms and tables</p> <p>Solve one-step and two-step questions [for example, ‘How many</p>	



<p>Solve problems that involve all of the above.</p>		<p>nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight Know the number of seconds in a minute and the number of days in each month, year and leap year Compare durations of events [for example to calculate the time taken by particular events or tasks].</p>	<p>Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.</p>	<p>more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.</p>
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<p>Block 1 - Place Value</p> <p>Count in multiples of 6, 7, 9, 25 and 1000 Find 1000 more or less than a given number Count backwards through zero to include negative numbers Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) Order and compare numbers beyond 1000 Identify, represent and estimate numbers using different representations Round any number to the nearest 10, 100 or 1000 Solve number and practical problems that involve all of the above and with increasingly large positive numbers Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.</p>	<p>Block 2 - Addition and subtraction</p> <p>Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate Estimate and use inverse operations to check answers to a calculation Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</p>	<p>Block 3 - Area</p> <p>What is area? Count squares Make shapes Compare areas</p>	<p>Block 4 - Multiplication and Division (multiples)</p> <p>Recall multiplication and division facts for multiplication tables up to 12×12 Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers Recognise and use factor pairs and commutativity in mental calculations</p>
<p>Block 5 - Multiplication and division (calculations)</p> <p>Recall multiplication and division facts for multiplication tables up to 12×12 Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers Recognise and use factor pairs and commutativity in mental calculations Multiply two-digit and three-digit numbers by a one-digit number using formal written layout Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.</p>	<p>Block 6 - Length and Perimeter</p> <p>Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres Find the area of rectilinear shapes by counting squares Convert between different units of measure</p>	<p>Block 7 - Fractions</p> <p>Recognise and show, using diagrams, families of common equivalent fractions Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number Add and subtract fractions with the same denominator</p>	<p>Block 8 - Decimals</p> <p>Recognise and write decimal equivalents of any number of tenths or hundredths Recognise and write decimal equivalents to 4 1 , 2 1 , 4 3 Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths Round decimals with one decimal place to the nearest whole number and to one decimal place. Compare numbers with the same number of decimal places up to two decimal places Solve simple measure and money problems involving fractions and decimals to two decimal places.</p>



		Solve simple measure and money problems involving fractions and decimals to two decimal places.		
<p>Block 9 - Money Estimate, compare and calculate different measures, including money in pounds and pence Convert between different units of measure</p>	<p>Block 10 - Time Read, write and convert time between analogue and digital 12- and 24-hour clocks Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.</p>	<p>Block 11 - Shape Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes Identify acute and obtuse angles and compare and order angles up to two right angles by size Identify lines of symmetry in 2-D shapes presented in different orientations Complete a simple symmetric figure with respect to a specific line of symmetry.</p>	<p>Block 12 - Statistics Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.</p>	<p>Block 13 - Position/Direction Describe positions on a 2-D grid as coordinates in the first quadrant Describe movements between positions as translations of a given unit to the left/right and up/down Plot specified points and draw sides to complete a given polygon.</p>



<p>Block 1 - Place Value Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 Solve number problems and practical problems that involve all of the above Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.</p>	<p>Block 2 - Addition and subtraction Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) Add and subtract numbers mentally with increasingly large numbers 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.</p>	<p>Block 3- Multiplication/Division Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers Know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers Establish whether a number up to 100 is prime and recall prime numbers up to 19 Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)</p>		<p>Block 4 – Fractions (addition and subtraction) Compare and order fractions whose denominators are all multiples of the same number Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number Add and subtract fractions with the same denominator and denominators that are multiples of the same number.</p>
<p>Block 5 - Multiplication and division 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 Multiply and divide numbers mentally drawing upon known facts 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 Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes</p>	<p>Block 6 – Fractions (multiplying with integers) Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. Read and write decimal numbers as a fraction.</p>	<p>Block 7 - Decimals and Percentages 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, and as a decimal Solve problems which require knowing percentage and decimal equivalents of 2 1 , 4 1 , 5 1 , 5 2 , 5 4 and those fractions with a</p>	<p>Block 8 - Perimeter and area Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes</p>	<p>Block 9 - Statistics Solve comparison, sum and difference problems using information presented in a line graph Complete, read and interpret information in tables, including timetables.</p>



<p>Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign</p> <p>Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.</p>		<p>denominator of a multiple of 10 or 25.</p>	<p>Use all four operations to solve problems involving measure</p>		
<p>Block 10 - Geometry</p> <p>Identify 3-D shapes, including cubes and other cuboids, from 2-D representations</p> <p>Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles</p> <p>Draw given angles, and measure them in degrees (o)</p> <p>Identify: angles at a point and one whole turn (total 360o)</p> <p>Angles at a point on a straight line and 2 1 a turn (total 180o)</p> <p>Other multiples of 90o</p> <p>Use the properties of rectangles to deduce related facts and find missing lengths and angles</p> <p>Distinguish between</p>	<p>Block 11 - Position and Direction</p> <p>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> <p>Pupils recognise and use reflection and translation in a variety of diagrams, including continuing to use a 2-D grid and coordinates in the first quadrant. Reflection should be in lines that are parallel to the axes.</p>	<p>Block 12 - Decimals (4 calculations)</p> <p>Read and write decimal numbers as fractions [for example, 0.71 = $\frac{71}{100}$] Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</p> <p>Round decimals with two decimal places to the nearest whole number and to one decimal place</p> <p>Read, write, order and compare numbers with up to three decimal places</p> <p>Solve problems involving number up to three decimal places</p>	<p>Block 13 - Negative Numbers</p> <p>Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.</p>	<p>Block 14 - Converting Units</p> <p>Convert between different units of metric measure (for example, kilometre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)</p> <p>Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints</p> <p>Solve problems involving converting between units of time</p>	<p>Block 15 - Volume</p> <p>Estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water]</p> <p>Use all four operations to solve problems involving measure</p>



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regular and irregular polygons based on reasoning about equal sides and angles.					
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<p>Block 1 - Place Value</p>	<p>Block 2 - Addition and subtraction, multiplication and division</p>	<p>Block 3 - Fractions</p>	<p>Block 4 - Converting Units</p>
<p>Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit Round any whole number to a required degree of accuracy Use negative numbers in context, and calculate intervals across zero Solve number and practical problems that involve all of the above</p>	<p>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 long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context Perform mental calculations, including with mixed operations and large numbers Identify common factors, common multiples and prime numbers Use their knowledge of the order of operations to carry out calculations involving the four operations 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 Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</p>	<p>Use common factors to simplify fractions; use common multiples to express fractions in the same denomination Compare and order fractions, including fractions > 1 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 [for example, $4 \frac{1}{2} \times 2 \frac{1}{3} = 8 \frac{1}{3}$] Divide proper fractions by whole numbers [for example, $3 \frac{1}{2} \div 2 = 6 \frac{1}{4}$] Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{8}{3}$] Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal place Multiply one-digit numbers with up to two decimal places by whole numbers Use written division methods in cases where the answer has up to two decimal places Solve problems which require answers to be rounded to specified degrees of accuracy Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</p>	<p>Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate 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 Convert between miles and kilometres</p>



Block 5 - Ratio	Block 6 - Algebra	Block 7 - Decimals	Block 8 - Fractions, Decimals and Percentages	Block 9 - Area, perimeter and volume	Block 10 - Statistics
<p>Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts</p> <p>Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison</p> <p>Solve problems involving similar shapes where the scale factor is known or can be found</p> <p>Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</p>	<p>Use simple formulae</p> <p>Generate and describe linear number sequences</p> <p>Express missing number problems algebraically</p> <p>Find pairs of numbers that satisfy an equation with two unknowns</p> <p>Enumerate possibilities of combinations of two variables.</p> <p>Missing numbers, lengths, coordinates and angles</p> <p>Formulae in mathematics and science</p> <p>Equivalent expressions (for example, $a + b = b + a$)</p> <p>Generalisations of number patterns</p> <p>Number puzzles (for example, what two numbers can add up to).</p>	<p>Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{3}{8}$]</p> <p>Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal place</p> <p>Multiply one-digit numbers with up to two decimal places by whole numbers</p> <p>Use written division methods in cases where the answer has up to two decimal places</p> <p>Solve problems which require answers to be rounded to specified degrees of accuracy</p> <p>Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</p>	<p>Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</p>	<p>Recognise that shapes with the same areas can have different perimeters and vice versa</p> <p>Recognise when it is possible to use formulae for area and volume of shapes</p> <p>Calculate the area of parallelograms and triangles</p> <p>Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3].</p>	<p>Interpret and construct pie charts and line graphs and use these to solve problems</p> <p>Calculate and interpret the mean as an average.</p>



Block 11 - Geometry

Draw 2-D shapes using given dimensions and angles
Recognise, describe and build simple 3-D shapes, including making nets
Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons
Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.

Block 12 - Position and Direction

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

Block 13 - Consolidation and themed projects