



# **Ashtree Primary School and Nursery**



## **Mathematics Curriculum**

## **Medium Term Overview**



## **Purpose of Study of the National Curriculum**

### **2014**

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

### **Aims of the National Curriculum 2014**

The National Curriculum for mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

### **Maths Vision at Ashtree**

Mathematics teaches us how to make sense of the world around us through developing a child's ability to calculate, to reason and to solve problems. It enables children to understand and appreciate relationships and pattern in both number and space in their everyday lives. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many cultures to the development and application of mathematics.

### **At Ashtree we aim to:**

promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion;

- promote confidence and competence with numbers and the number system;
- develop the ability to solve problems through decision-making and reasoning in a range of contexts;
- develop a practical understanding of the ways in which information is gathered and presented;
- explore features of shape and space, and develop measuring skills in a range of contexts;
- understand the importance of mathematics in everyday life.

### **Teaching and Learning Mathematics at Ashtree:**

We use a variety of teaching and learning styles to develop children's knowledge, skills and understanding in mathematics. We do this through lessons that have a high proportion of whole-class and group teaching. During these lessons we encourage children to ask as well as answer mathematical questions and give explanations. They have the opportunity to use a wide range of resources such as number lines, number squares, number cards and small apparatus to support their work. Children use ICT in mathematics lessons where it will enhance their learning, as in modelling ideas and methods. Wherever possible, we encourage the children to use and apply their learning in everyday situations.

In all classes there are children of differing mathematical ability. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this through a range of strategies – in some lessons through differentiated group work and in other lessons by organising the children to work in pairs on open-ended problems or games. We use Teaching Assistants to support some children and to ensure that work is matched to the needs of individuals.



	<b>End Points</b>	
<b>KS1</b>	<b>Measurement</b>	Use standard units of measurement, comparing measures and the number system with the appropriate language. Telling the time on analogue clocks. Can count and recognising coins using the symbols £ and p accurately.
	<b>Number &amp; Place Value</b>	To count, read, write and comparing numbers to at least 100 and solve problems fluently. They count in multiples of 2,5,10 & 3. Pupils are introduced to larger numbers to develop further their recognition of patterns within the number system and represent them. Pupils should partition numbers in different ways They will become fluent and reason, discuss and solve problems. They begin to understand zero as a place holder.
	<b>Multiplication &amp; Division</b>	To become fluent in the 2, 5 and 10 multiplication tables and connect them to each other using the correct vocabulary. They know related division facts to perform written and mental calculations.
	<b>Fractions</b>	Pupils use fractions as 'fractions of' discrete and continuous quantities of shapes, objects and quantities. They will use the correct vocabulary.
	<b>Geometry: Position and Direction</b>	To work with patterns of shapes, including those in different orientations using the correct vocabulary. They use the concept and language of angles to describe 'turn' by applying rotations.
	<b>Geometry: Properties of Shape</b>	Pupils name 2-D and 3-D shapes and identify the properties of each shape. Pupils identify, compare and sort shapes on the basis of their properties and use vocabulary precisely, such as sides, edges, vertices and faces. Pupils read and write names for shapes appropriately
	<b>Addition &amp; Subtraction</b>	Pupils use the correct vocabulary addition and subtraction. Pupils are fluent in deriving facts for addition and subtraction within 20. They check their calculations using reordering, the inverse and commutativity. They begin to use addition and subtraction in columns.
	<b>Statistics</b>	Pupils record, interpret, collate, organise and compare information. They use simple ratios
<b>KS2</b>	<b>Ratio, Proportion &amp; Algebra</b>	Pupils recognise proportionality in contexts when the relations between quantities are in the same ratio. Pupils link percentages or 360° to calculating angles of pie charts. Pupils should consolidate their understanding of ratio when comparing quantities, size and scale drawings by solving a variety of problems Pupils solve problems involving unequal quantities
	<b>Measurement</b>	Pupils connect conversion to a graphical representation They know approximate conversions Using the number line, pupils use, add and subtract positive and negative integers for measures. They relate the area of rectangles to parallelograms and triangles
	<b>Number &amp; Place Value</b>	Pupils use the whole number system, including saying, reading and writing numbers accurately.
	<b>Multiplication &amp; Division</b>	Pupils multiply and divide using the short and long method using their multiplication tables to aid fluency They mentally calculate with increasingly large numbers and more complex calculations Pupils explore the order of operations using brackets Common factors can be related to finding equivalent fractions.
	<b>Fractions</b>	Pupils use and understand the addition and subtraction of fractions with different denominators by identifying equivalent fractions with the same denominator. They



## MEDIUM TERM PLANNING OVERVIEWS

		calculate with simple fractions and decimal fraction equivalents to aid fluency. Pupils can convert a simple fraction to a decimal fraction and can round the decimal to three decimal places. Pupils multiply and divide numbers with up to two decimal places by one-digit and two-digit whole numbers. Pupils multiply decimals by whole numbers. Pupils are introduced to the division of decimal numbers by one-digit whole number and recognise division calculations as the inverse of multiplication
	<b>Geometry: Position and Direction</b>	Pupils can draw and label a pair of axes in all four quadrants with equal scaling. Pupils draw and label shapes specified by coordinates in the four quadrants, predicting missing coordinates using the properties of shapes.
	<b>Geometry: Properties of Shape</b>	Pupils draw shapes and nets accurately, using measuring tools and conventional markings and labels for lines and angles. Pupils describe the properties of shapes and explain how unknown angles and lengths can be derived from known measurements. These relationships might be expressed algebraically for example, $d = 2 \times r$ ; $a = 180 - (b + c)$ .
	<b>Addition &amp; Subtraction</b>	Pupils add and subtract larger numbers, using the formal methods. They mentally calculate with increasingly large numbers and complex calculations. Pupils round answers and explore the order of operations using brackets
	<b>Statistics</b>	Pupils connect their work on angles, fractions and percentages to the interpretation of pie charts. Pupils draw graphs relating two variables. They connect conversion from kilometres to miles in measurement to its graphical representation. Pupils know when it is appropriate to find the mean of a data set.

	Domains	Concepts
<b>KS1</b>	<b>Measurement</b>	<ul style="list-style-type: none"> <li>choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels</li> <li>compare and order lengths, mass, volume/capacity and record the results using <math>&gt;</math>, <math>&lt;</math> and <math>=</math></li> <li>recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value</li> <li>find different combinations of coins that equal the same amounts of money</li> <li>solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change</li> <li>compare and sequence intervals of time</li> <li>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</li> </ul>
	<b>Number &amp; Place Value</b>	<ul style="list-style-type: none"> <li>count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward</li> <li>recognise the place value of each digit in a two-digit number (tens, ones)</li> <li>identify, represent and estimate numbers using different representations, including the number line</li> <li>compare and order numbers from 0 up to 100; use <math>&lt;</math>, <math>&gt;</math> and <math>=</math> signs</li> <li>read and write numbers to at least 100 in numerals and in words</li> </ul>



## MEDIUM TERM PLANNING OVERVIEWS

		<ul style="list-style-type: none"> <li>use place value and number facts to solve problems</li> </ul>
	<b>Multiplication &amp; Division</b>	<ul style="list-style-type: none"> <li>recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</li> <li>calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (<math>\times</math>), division (<math>\div</math>) and equals (=) signs</li> <li>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</li> </ul>
	<b>Fractions</b>	<ul style="list-style-type: none"> <li>recognise, find, name and write fractions <math>\frac{1}{3}</math>, <math>\frac{1}{4}</math>, <math>\frac{2}{4}</math> and <math>\frac{3}{4}</math> of a length, shape, set of objects or quantity</li> <li>write simple fractions for example, <math>\frac{1}{2}</math> of 6 = 3 and recognise the equivalence of <math>\frac{2}{4}</math> and <math>\frac{1}{2}</math></li> </ul>
	<b>Geometry: Position and Direction</b>	<ul style="list-style-type: none"> <li>order and arrange combinations of mathematical objects in patterns and sequences</li> <li>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 anti-clockwise)</li> </ul>
	<b>Geometry: Properties of Shape</b>	<ul style="list-style-type: none"> <li>identify and describe the properties of 2-D shapes, including the number of sides and symmetry in a vertical line</li> <li>identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces</li> <li>identify 2-D shapes on the surface of 3-D shapes, [for example a circle on a cylinder and a triangle on a pyramid]</li> <li>compare and sort common 2-D and 3-D shapes and everyday objects</li> </ul>
	<b>Addition &amp; Subtraction</b>	<ul style="list-style-type: none"> <li>solve problems with addition and subtraction: <ul style="list-style-type: none"> <li>using concrete objects and pictorial representations, including those involving numbers, quantities and measures</li> <li>applying their increasing knowledge of mental and written methods</li> </ul> </li> <li>recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</li> <li>add and subtract numbers using concrete objects, pictorial representations, and mentally, including: <ul style="list-style-type: none"> <li>a two-digit number and ones</li> </ul> </li> </ul>



## MEDIUM TERM PLANNING OVERVIEWS

		<ul style="list-style-type: none"> <li>- a two-digit number and tens</li> <li>- two two-digit numbers</li> <li>- adding three one-digit numbers</li> <li>• show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems</li> </ul>
	<b>Statistics</b>	<ul style="list-style-type: none"> <li>• interpret and construct simple pictograms, tally charts, block diagrams and simple tables</li> <li>• ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity</li> <li>• ask and answer questions about totalling and comparing categorical data</li> </ul>
<b>KS2</b>	<b>Ratio, Proportion &amp; Algebra</b>	<ul style="list-style-type: none"> <li>• solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts</li> <li>• solve problems involving the calculation of percentages [for example, of measures, such as 15% of 360] and the use of percentages for comparison</li> <li>• solve problems involving similar shapes where the scale factor is known or can be found</li> <li>• solve problems involving unequal sharing and grouping using knowledge of fractions and multiples</li> <li>• use simple formulae</li> <li>• generate and describe linear number sequences</li> <li>• express missing number problems algebraically</li> <li>• find pairs of numbers that satisfy an equation with two unknowns</li> <li>• enumerate possibilities of combinations of two variables</li> </ul>
	<b>Measurement</b>	<ul style="list-style-type: none"> <li>• solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate</li> <li>• 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</li> <li>• convert between miles and kilometres</li> <li>• recognise that shapes with the same areas can have different perimeters and vice versa</li> <li>• recognise when it is possible to use formulae for area and volume of shapes</li> <li>• calculate the area of parallelograms and triangles</li> <li>• calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (<math>\text{cm}^3</math>) and cubic metres (<math>\text{m}^3</math>), and extending to other units [for example, <math>\text{mm}^3</math> and <math>\text{km}^3</math>]</li> </ul>



	<b>Number &amp; Place Value</b>	<ul style="list-style-type: none"> <li>• read, write, order and compare numbers up to 10 000 000 and determine the value of each digit</li> <li>• round any whole number to a required degree of accuracy</li> <li>• use negative numbers in context, and calculate intervals across zero</li> <li>• solve number and practical problems that involve all of the above</li> </ul>
	<b>Multiplication &amp; Division</b>	<ul style="list-style-type: none"> <li>• multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication</li> <li>• 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</li> <li>• 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</li> <li>• perform mental calculations, including with mixed operations and large numbers</li> <li>• identify common factors, common multiples and prime numbers</li> <li>• use their knowledge of the order of operations to carry out calculations involving the four operations</li> <li>• solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</li> <li>• 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</li> </ul>
	<b>Fractions</b>	<ul style="list-style-type: none"> <li>• use common factors to simplify fractions; use common multiples to express fractions in the same denomination</li> <li>• compare and order fractions, including fractions <math>&gt;1</math></li> <li>• add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions</li> <li>• multiply simple pairs of proper fractions, writing the answer in its simplest form (for example, <math>\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}</math>)</li> <li>• divide proper fractions by whole numbers (for example, <math>\frac{1}{3} \div 2 = \frac{1}{6}</math>)</li> <li>• associate a fraction with division and calculate decimal fraction equivalents (for example, 0.375) for a simple fraction (for example, <math>\frac{3}{8}</math>)</li> <li>• 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 places</li> <li>• multiply one-digit numbers with up to two decimal places by whole numbers</li> <li>• use written division methods in cases where the answer has up to two decimal places</li> <li>• solve problems which require answers to be rounded to specified degrees of accuracy</li> <li>• recall and use equivalences between simple fractions, decimals and percentages, including in different contexts</li> </ul>
	<b>Geometry: Position and Direction</b>	<ul style="list-style-type: none"> <li>• describe positions on the full coordinate grid (all four quadrants)</li> </ul>





## MEDIUM TERM PLANNING OVERVIEWS

		<ul style="list-style-type: none"> <li>draw and translate simple shapes on the coordinate plane, and reflect them in the axes</li> </ul>
	<b>Geometry: Properties of Shape</b>	<ul style="list-style-type: none"> <li>draw 2-D shapes using given dimensions and angles</li> <li>recognise, describe and build simple 3-D shapes, including making nets</li> <li>compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons</li> <li>illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius</li> <li>recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles</li> </ul>
	<b>Addition &amp; Subtraction</b>	<ul style="list-style-type: none"> <li>perform mental calculations, including with mixed operations and large numbers</li> <li>use their knowledge of the order of operations to carry out calculations involving the four operations</li> <li>solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</li> <li>solve problems involving addition and subtraction, use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy</li> </ul>
	<b>Statistics</b>	<ul style="list-style-type: none"> <li>interpret and construct pie charts and line graphs and use these to solve problems</li> <li>calculate and interpret the mean as an average</li> </ul>





## Year 1 Medium Term Planning **Autumn**

### **Number – Number and place value:**

Numbers to Ten – Finding Patterns in Numbers (including subitising)  
Numbers to Ten – Counting and Comparison (more, less, fewer)  
Numbers to Ten – Estimating and Ordering  
Numbers to Twenty – Making 10 and Some More  
Numbers to Twenty – Estimating and Ordering, 1 More and 1 Less

### **Number – Multiplication and Division:**

Numbers to Twenty – Doubling and Halving  
Numbers to Twenty – Odd and Even Numbers

### **Number – Addition and Subtraction:**

Numbers to Ten – Regrouping the Whole  
Numbers to Ten – Part Whole Addition and Subtraction  
Numbers to Ten – Solving Problems Using Part or Whole Unknown  
Numbers to Ten – Comparison  
Numbers to Ten – Equality and Balance

### **Geometry – Properties of shape**

Positional Language Including Ordinal Numbers  
Names and Properties of 2-D and 3-D Shape

**Problem-solving and reasoning should be integrated into all activities.**

**Opportunities to explain and justify opinions and make explanations should be incorporated into planning.**

**Children should be challenged and extended through the problems they are given to solve.**

Block	Strand	Learning Objectives – End of Year targets to broken down in weekly plans
<b>1</b>	<b>Geometry</b>  Positional Language Including Ordinal Numbers	Describe position, direction and movement, including whole, half, quarter and three-quarter turns  Positional language Turning Position – ordinal numbers Position – ordinal numbers from left and right Position – ordinal numbers within buildings Position within a grid
<b>2</b>	<b>Number and place value</b>  Numbers to Ten – Finding Patterns in Numbers (including subitising)	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  Conservation of number Conservation of number - rearranging Subitising familiar patterns Subitising numbers to ten
<b>3</b>	<b>Number and place value</b>  Numbers to Ten – Counting and	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  Ordering values



	Comparison (more, less, fewer)	Ordering consecutive numbers Linking counting and sequencing
4	<b>Number and place value</b>  Numbers to Ten – Estimating and Ordering	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  Represent numbers up to 10 in many ways through regrouping Matching values to mathematical models using increasingly complex regrouping
5	<b>Number and place value</b>  Numbers to Ten – Regrouping the Whole	Add and subtract one-digit and two-digit numbers to 20, including zero  Regrouping within numbers to 10 Exploring the language of addition Exploring commutativity Exploring counting on Exploring ways to make 5 Using regrouping to make 5 and some more (think 5) Subtraction by taking away Explore the language of subtraction Subtraction is not commutative
6	<b>Number and place value</b>  Numbers to Ten – Part Whole Addition and Subtraction	Add and subtract one-digit and two-digit numbers to 20, including zero  Revising identifying the whole and the parts (where all parts and wholes are shown) Story problems with unknown whole (addition) Story problems with one unknown part (subtraction – take away model) Matching representations Exploring statements focusing on language and proof Finding all possibilities Exploring number sentences
7	<b>Number and place value</b>  Numbers to Ten – Solving Problems Using Part or Whole Unknown	Add and subtract one-digit and two-digit numbers to 20, including zero  Using 1:1 correspondence to find how many more / fewer Introducing the language of difference Understand difference as the distance between two numbers Finding difference in context
8	<b>Number and place value</b>  Numbers to Ten – Comparison	Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs  Using language to express equivalent ways of making the same total Using language to express equivalent ways of making the same total (using a tens frame) Making equal values using symbols to record Making equivalent values using addition and subtraction Bonds to 10 Finding equivalents
9	<b>Number and place value</b>  Numbers to Ten – Equality and Balance	Read and write numbers from 1 to 20 in numerals and words  Benchmarks of 0, 5 and 10 and their relationship to the numbers 1-10 Making greater than 10 Building numbers to 20 Links between the language of eleven to twenty and ten and <input type="checkbox"/> more



		<p>Ten and some more using place value, base-10, equipment</p> <p>Links between the language of eleven to twenty and the language of place value</p>
<b>10</b>	<p><b>Number and place value</b></p> <p>Numbers to Twenty – Making 10 and Some More</p>	<p>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</p> <p>Estimating and comparing smaller and larger quantities</p> <p>Estimating and comparing sets of different objects</p> <p>1 more / 1 less - numbers ten to twenty</p> <p>1 more / 1 less on a number line</p> <p>Comparing and ordering numbers on a blank number track</p> <p>Placing numbers 0-20 on a blank number line (number magnitude)</p>
<b>11</b>	<p><b>Number and place value</b></p> <p>Numbers to Twenty – Estimating and Ordering, 1 More and 1 Less</p>	<p>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</p> <p>Building on part whole understanding where the parts are equal</p> <p>Replace colours with numbers and quantities to explore equal parts of the whole further</p> <p>Making doubles and finding halves using tens frames</p>
<b>12</b>	<p><b>Number and place value</b></p> <p>Numbers to Twenty – Doubling and Halving</p>	<p>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</p> <p>Explore odd and even numbers through the use of tens frames</p> <p>Explore the alternating pattern of odd and even in consecutive numbers using number rods</p> <p>Explore the odd and even number values on a number line</p>
<b>13</b>	<p><b>Number and place value</b></p> <p>Numbers to Twenty – Odd and Even Numbers</p>	<p>Recognise and name common 2-D and 3-D shapes, including:</p> <ul style="list-style-type: none"> <li>- 2-D shapes [for example, rectangles (including squares), circles and triangles]</li> <li>3-D shapes [for example, cuboids (including cubes), pyramids and spheres]</li> </ul> <p>To understand what a mathematical shape is</p> <p>Identify 2-D shapes through their properties in an unfamiliar context</p> <p>To classify 3-D shapes</p> <p>To explore the shape of the faces on 3-D shapes</p>
<b>14</b>	<p><b>Geometry</b></p> <p>Names and Properties of 2-D and 3-D Shape</p>	<p>Recognise and name common 2-D and 3-D shapes, including:</p> <ul style="list-style-type: none"> <li>- 2-D shapes [for example, rectangles (including squares), circles and triangles]</li> <li>- 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]</li> </ul> <p>To understand what a mathematical shape is</p> <p>Identify 2-D shapes through their properties in an unfamiliar context</p> <p>To classify 3-D shapes</p> <p>To explore the shape of the faces on 3-D shapes</p>



# Year 1 Medium Term Planning **Spring**

## **Number - Number and place value:**

Numbers to Twenty – Equality and Balance

Numbers to Twenty– Language and Problem Solving

## **Number – Multiplication and Division:**

Counting in 2s, 5s 10s.

## **Number – Addition and Subtraction:**

Number to 20 - Adding using 'Think 10'

Number to 20 – Subtraction using 'Think 10'

Numbers to Twenty – Part or Whole Unknown

Numbers to Twenty – Comparison (difference, more, less, fewer) including **Statistics**

## **Measurement:**

The Language of Comparing Length, Height, Mass, Speed

Days of the Week and Months of the Year

Coins and Combinations to 20p, Ordering and Comparing

Non-standard Measures and Introducing Simple Standard Measures

**Problem-solving and reasoning should be integrated into all activities.**

**Opportunities to explain and justify opinions and make explanations should be incorporated into planning.**

**Children should be challenged and extended through the problems they are given to solve.**

Block	Strand	Learning Objectives – End of Year targets to broken down in weekly plans
<b>1</b>	<b>Measures</b>  The Language of Comparing Length, Height, Mass, Speed	Compare, describe and solve practical problems for: - lengths and heights (for example, long / short, longer / shorter, tall / short, double / half) - mass / weight (for example, heavy / light, heavier than, lighter than) - time (quicker, slower)  Using comparative language in the context of length and height Using comparative language in the context of mass Compare the mass of items using pan balances Using comparative language in the context of time Ordinal numbers used to order timed events
<b>2</b>	<b>Measures</b>  Sequencing Events – Days of the Week and Months of the Year	Recognise and use language relating to dates, including days of the week, weeks, months and years  Days of the week Events during the week Months and seasons of the year
<b>3</b>	<b>Number</b>  Number to Twenty - Adding using 'Think 10'	Add and subtract one-digit and two-digit numbers to 20, including zero  Make 10 and using think 5 recap Think 10 by regrouping the second addend Think 10 by regrouping the first addend Think 10 when regrouping a two-digit number to aid addition Using think 15
<b>4</b>	<b>Number</b>	Add and subtract one-digit and two-digit numbers to 20, including zero



## MEDIUM TERM PLANNING OVERVIEWS

	Number to 20 – Subtraction using ‘Think 10’	Counting back from twenty Subtracting 1-digit numbers from 2-digit numbers, below twenty, without crossing 10 Subtracting 1-digit numbers from numbers between 10 - 20 crossing the benchmark 10 Subtracting 1-digit numbers from numbers between 10 - 20 by regrouping and taking from the 10
5	<b>Number and place value</b>  Numbers to Twenty – Equality and Balance	Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs  Explore different ways to total the same value (numbers 11 to 20) Exploring different ways to make the same total, including + and - (numbers 11 to 20) Bonds to 20
6	<b>Number</b>  Numbers to Twenty – Part or Whole Unknown	Represent and use number bonds and related subtraction facts within 20  Identifying the part and whole Identify if a part or the whole is missing Part whole relationships using +, - and = symbols Numbers to twenty - part or whole unknown
7	<b>Number</b>  Numbers to Twenty– Language and Problem Solving	Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems  The language of problem solving (the whole as the result) The language of problem solving (a part as the result) Using the language of problem solving to solve problems with the whole unknown Using the language of problem solving to solve problems with a part unknown Developing the skills of problem solving Finding all possibilities
8	<b>Number</b>  Numbers to Twenty – Comparison (difference, more, less, fewer) including Statistics	Add and subtract one-digit and two-digit numbers to 20, including zero  Comparing values using 1:1 and familiar structures Finding the difference between values Finding the difference in the context of statistics Solving problems involving comparison and difference
9	<b>Measures</b>  Coins and Combinations to 20p, Ordering and Comparing	Recognise and know the value of different denominations of coins and notes  Recognising the value of coins using a proportional representation Comparing the value of coins using a proportional model Calculating coin combinations for values that do not have a designated coin below 10p Calculating coin combinations for values that do not have a designated coin between 11p and 20p Compare and order different combinations of coins
10	<b>Number</b>  Counting in 2s, 5s 10s.	Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens  Counting in 2s and spotting patterns Counting in 5s and spotting patterns Counting in 10s and spotting patterns Counting with coins – 2p, 5p and 10p
11	<b>Measures</b> Non-standard Measures and Introducing Simple Standard Measures	Measure and begin to record lengths, heights, mass/weight, capacity / volume  Comparing volumes in containers of the same size Comparing what the same volume looks like in different shaped containers Measuring lengths using Cuisenaire rods Measuring lengths using centimetres Weighing mass with non-standard units Weighing mass with standard units



## **Year 1 Medium Term Planning Summer**

### **Number and place value:**

Numbers to Twenty

Numbers to One Hundred

Place Value – Estimation, Ordering and Comparison

### **Fractions:**

Fractions – Sharing into Equal Groups

Fractions – Equal or Unequal Parts of Shapes

Fractions of Continuous Quantities Including Capacity

### **Measurement:**

Time – Telling the Time (O’Clock and Half Past)

### **Geometry**

### **Multiplication and Division:**

Multiplication and Division – Equal or Unequal Groups and Remainders

Multiplication – Repeated Addition and Arrays

Multiplication – Problem Solving

Multiplication – Scaling and Counting in 2s to 24

Division – Sharing and Grouping Problems

<b>Problem-solving and reasoning should be integrated into all activities.</b>  <b>Opportunities to explain and justify opinions and make explanations should be incorporated into planning.</b>  <b>Children should be challenged and extended through the problems they are given to solve.</b>		
Block	Strand	Learning Objectives – End of Year targets to broken down in weekly plans
<b>1</b>	<b>Multiplication and Division</b>  Equal or Unequal Groups and Remainders	Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays  Sharing into equal groups Sharing into unequal groups Equal or unequal groups?
<b>2</b>	<b>Multiplication</b>  Repeated Addition and Arrays	Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays  Counting and repeated addition The language of multiplication Repeated addition and arrays (2s) Repeated addition and arrays (5s and 10s)
<b>3</b>	<b>Multiplication</b>  Problem Solving	Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays  Finding the maths in a picture Multiplying the maths in a picture Multiplication and measure
<b>4</b>	<b>Multiplication</b>  Scaling and Counting in 2s to 24	Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays  Exploring scaling Twice as long Twice as many - patterns Twice as many - recipe





5	<b>Division</b>  Sharing and Grouping Problems	Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays  Sharing into equal groups Solving sharing problems Division by grouping Solving grouping problems Linking multiplication and division
6	<b>Time</b>  Telling the Time (O'Clock and Half Past)	Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times  Clockwise and anti-clockwise turns The hands on a clock Telling the time – o'clock Telling the time – half past Intervals of time
7	<b>Fractions</b>  Sharing into Equal Groups	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  Finding equal parts of a whole (halves) Finding equal parts of a whole (quarters) Finding half of an amount Finding a quarter of an amount Finding halves and quarters of amounts in context
8	<b>Fractions</b>  Equal or Unequal Parts of Shapes	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  Identifying whether a shapes has been halved or not Identifying whether a shape has been quartered or not Identifying and finding halves of an amount in the context of shapes Identifying and finding quarters of an amount in the context of shapes
9	<b>Fractions</b>  of Continuous Quantities Including Capacity	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  Fractions in the context of capacity Measuring capacity Fractions in the context of length Fraction of a turn using the context of a clock face
10	<b>Numbers to Twenty</b>	Represent and use number bonds and related subtraction facts within 20  Magnitude and key benchmark numbers Equality Inequality Using known addition facts to choose efficient calculation strategies Strategies for calculating subtraction Worded problems for + and -
11	<b>Numbers to One Hundred</b>  Place Value and Digits, Making Tens and Some More	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  Counting in 10s to 100 Counting in 1s to and across 100 Counting in 5s to 100 Counting in 2s to 100 'Tens and some more' – part whole Making 'tens and some more' with money Representing 2-digit numbers
12	<b>Place Value</b>	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





	<p>Estimation, Ordering and Comparison</p>	<p>Ordering and comparing lengths to 100 Ordering and comparing values to 100 Ordering and comparing values in different representations to 100 Estimation and number magnitude Using place value to estimate and order</p>
--	--	---



## Year 2 Medium Term Planning **Autumn**

### **Number - Number and place value:**

Place Value – Making Tens and Some More

Place Value and Regrouping Two-Digit Numbers

Counting On and Back in Ones and Tens from any Number

Representing, Ordering and Comparing Numbers to 100 and Quantities for Measures

Estimation and Magnitude

Comparison (difference, more, less, fewer)

### **Number – Addition and Subtraction:**

Securing Fluency to Twenty

Numbers to 20 – Mental Addition and Subtraction

Finding Complements of 10 and 100 Including Measures

Add and Subtract Numbers Mentally Using 1- and 2-Digit Numbers

Finding Part or Whole Unknown

Money – Making Combinations and Finding Change

### **Measurement:**

Measures – Estimation and Measure Using Different Scales

**Problem-solving and reasoning should be integrated into all activities.**

**Opportunities to explain and justify opinions and make explanations should be incorporated into planning.**

**Children should be challenged and extended through the problems they are given to solve.**

Block	Strand	Learning Objectives – End of Year targets to broken down in weekly plans
1	<b>Number Addition and Subtraction</b>  Securing Fluency to Twenty	Recall and use addition and subtraction facts to 20 fluently  Number magnitude to 20 Double and near doubles Regrouping (partitioning) numbers to ten Regrouping numbers 11 - 20 Equivalence Inequality < and > Regrouping to 'think 10' in addition Using counting on and back through 10 to compare and calculate the difference Using 'think 10' for subtraction Using 10 for adding 3 single digit numbers Choosing a strategy Adding odd and even numbers
2	<b>Number and place value</b>  Place Value – Making Tens and Some More	Recognise the place value of each digit in a two-digit number (tens, ones)  Regrouping ten ones for one ten Regrouping ten pennies for ten pence Regrouping one ten for ten ones Regrouping ten pence for ten pennies
3	<b>Number and place value</b>  Place Value and Regrouping Two-Digit Numbers	Recognise the place value of each digit in a two-digit number (tens, ones)  Identifying the place value in 2-digit numbers using place value cards and base-10 Identifying the place value in 2-digit numbers using a proportional (base-10) and non-proportional (money) model Comparing representations of 2-digit numbers Making regroupings of the same number in different ways Identify missing parts of a regrouped number in a variety of models



4	<b>Number and place value</b>  Counting On and Back in Ones and Tens from any Number	Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward  Highlighting the place value of an identified number Counting on and back Counting on and back in through benchmarks Deepening the concept of unitisation across linear and grid models
5	<b>Number and place value</b>  Representing, Ordering and Comparing Numbers to 100 and Quantities for Measures	Compare and order numbers from 0 up to 100; use $<$ , $>$ and $=$ signs  Ordering numbers Ordering numbers represented in a variety of ways $<$ , $>$ and $=$ symbols Order and comparing quantities for measures
6	<b>Number and place value</b>  Estimation and Magnitude	Identify, represent and estimate numbers using different representations, including the number line  Placing numbers on a number line in the correct positions Using benchmarks to estimate values on a number line Placing numbers proportionally correctly on a blank number line using benchmarks
7	<b>Number Addition and Subtraction</b>  Numbers to 20 – Mental Addition and Subtraction	Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100  Adding more than two single digit numbers using reordering Rebalancing when adding 9 or 11 Rebalancing when subtracting 9 or 11 Use think addition for subtraction
8	<b>Number Addition and Subtraction</b>  Finding Complements of 10 and 100 Including Measures	Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100  Rehearsing the complements to 10 and comparing them to the complements to 100 Continue to rehearse complements to 10 and 100 whilst regrouping flexibly Think addition for subtraction using multiples of 10 within the context of a problem Think addition for subtraction using multiples of 10 within measure
9	<b>Number Addition and Subtraction</b>  Add and Subtract Numbers Mentally Using 1- and 2-Digit Numbers	Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: - a two-digit number and ones - a two-digit number and tens - two two-digit numbers - adding three one-digit numbers  Using doubles and near doubles Finding the nearest multiple of ten Rebalancing for equal sum Using rebalancing in context Difference Rebalancing to find the equal difference Adding a 1-digit number to a 2-digit number using think 10 Adding a 2-digit number to a 2-digit number using think 10 Subtracting a 1-digit number from a 2-digit number using think 10



<b>10</b>	<b>Number Addition and Subtraction</b>  Finding Part or Whole Unknown	Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems  Identifying the parts and the whole using Cuisenaire rods in a bar model Identifying the parts and whole in a cherry model Inverse relationship of addition and subtraction Using inverse to find missing numbers Using inverse to find missing numbers in problems Missing numbers in a range contexts including measures
<b>11</b>	<b>Number Addition and Subtraction</b>  Money – Making Combinations and Finding Change	Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change  Find different combinations of coins that equal the same amounts of money Solve calculations involving subtraction of money of the same unit Solve simple problems in a practical context involving addition and subtraction of money of the same unit Continue to solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change
<b>12</b>	<b>Number and place value</b>  Comparison (difference, more, less, fewer)	Compare and order numbers from 0 up to 100; use $<$ , $>$ and $=$ signs  Understand difference when comparing numbers on number lines to other models Compare values in the context of measuring mass (g) and use the language of comparison Compare values in the context of comparing mass (kg) and use the language of comparison Compare values in the context of measuring heights, lengths and widths, using the language of comparison Compare values in a variety of contexts
<b>13</b>	<b>Measurement</b>  Estimation and Measure Using Different Scales	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  Estimate on a number line using benchmarks Estimate and compare capacities Read capacities on different scales Read scales on circular dials Solve problems reading scales



## Year 2 Medium Term Planning **Spring**

### **Number – Addition and Subtraction:**

Written Addition Method

Commutativity in Addition but not in Subtraction

Written Subtraction Method

Problem Solving with Addition and Subtraction in a Range of Contexts

### **Number – Multiplication and division:**

Double and Halve One and Two-digit Numbers and Amounts of Money

Times Tables – 2s, 5s and 10s. Patterns and Strategy (counting in 3s)

Multiplication – Multiples and Repeated Addition

Multiplication – Number of Groups, Group Size and Product

Multiplication Problem Solving

Division – Sharing and Grouping

Division – Sharing and Grouping Problems including Remainders

### **Measurement:**

Telling the Time to: O'clock, Half Past, Quarter Past and To

Estimating, Ordering and Comparing Time

### **Statistics**

Totalling and Comparing Amounts in Block Graphs, Pictograms, Tables and Tally Charts

**Problem-solving and reasoning should be integrated into all activities.**

**Opportunities to explain and justify opinions and make explanations should be incorporated into planning.**

**Children should be challenged and extended through the problems they are given to solve.**

Block	Strand	Learning Objectives – End of Year targets to broken down in weekly plans
<b>1</b>	<b>Statistics</b>  Totalling and Comparing Amounts in Block Graphs, Pictograms, Tables and Tally Charts	Interpret and construct simple pictograms, tally charts, block diagrams and simple tables  Tables for sorting Information tables Gathering data using tally charts Representing data in block graphs Pictograms
<b>2</b>	<b>Addition &amp; Subtraction</b>  Written Addition Method	Applying their increasing knowledge of mental and written methods  Choosing the appropriate mental strategy when adding a two-digit number and ones Adding two-digit numbers and tens using concrete resources and pictorial representations Adding two 2-digit numbers using a written method with no regrouping Adding two 2-digit numbers using a written method with regrouping of ones
<b>3</b>	<b>Addition &amp; Subtraction</b>  Commutativity in Addition but	Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot  Reviewing the parts and the whole using Cuisenaire rods in a bar model Prove that addition is commutative Prove that commutativity is not possible when subtracting



	not in Subtraction	
4	<b>Subtraction</b>  Written Subtraction Method	Solve problems with addition and subtraction, applying their increasing knowledge of mental and written methods  Subtracting a 1-digit number from a 2-digit number – counting back using think 10 and regrouping Subtracting a 1-digit number from a 2-digit number – regrouping the minuend Subtracting tens from a 2-digit number Subtracting a 2-digit number from a 2-digit number with no regrouping Subtracting a 2-digit number from a 2-digit number with regrouping
5	<b>Addition &amp; Subtraction</b>  Problem Solving with Addition and Subtraction in a Range of Contexts	Solve problems with addition and subtraction: - using concrete objects and pictorial representations, including those involving numbers, quantities and measures  The language of problem solving Finding the unknown in a worded problem Choosing a strategy Strategies for solving missing number problems Further problem solving within statistics
6	<b>Time</b>  Telling the Time to: O'clock, Half Past, Quarter Past and To	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  Turns – quarter turn, half turn, three-quarter turn and full turn Telling the time – o'clock, quarter past, half past, quarter to Telling the time to 5 minute intervals
7	<b>Time</b>  Estimating, Ordering and Comparing Time	Compare and sequence intervals of time  Estimating intervals of time Ordering intervals of time Comparing intervals of time
8	<b>Multiplication</b> Double and Halve One and Two-digit Numbers and Amounts of Money	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers  Doubling two-digit numbers Halving multiples of ten Halving two-digit numbers Doubling and halving in the context of money
9	<b>Multiplication</b>  Times Tables – 2s, 5s and 10s Patterns and Strategy (counting in 3s)	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers  Patterns and strategies for the 2 times table Patterns and strategies for the 5 and 10 times tables Counting in 3s
10	<b>Multiplication</b>	Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication ( $\times$ ), division ( $\div$ ) and equals (=) signs



	Multiples and Repeated Addition	<p>Linking repeated addition and multiples</p> <p>Multiples and multiplication</p> <p>Exploring arrays</p>
	<p><b>Multiplication</b></p> <p>Number of Groups, Group Size and Product</p>	<p>Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (<math>\times</math>), division (<math>\div</math>) and equals (=) signs</p> <p>The language of multiplication</p> <p>The commutativity of multiplication</p> <p>Strategies to calculate multiplication facts – regrouping to multiply</p>
	<p><b>Multiplication</b></p> <p>Problem Solving</p>	<p>Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts</p> <p>Bar modelling for multiplication problems</p> <p>Multiplication of measures</p> <p>Multiplication and money (£ and p)</p> <p>Mixed worded problems</p>
	<p><b>Division</b></p> <p>Sharing and Grouping</p>	<p>Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (<math>\times</math>), division (<math>\div</math>) and equals (=) signs</p> <p>Division by sharing</p> <p>Division by grouping</p> <p>Division by grouping using arrays</p> <p>Linking division and multiplication</p> <p>Using multiplication facts to divide</p>
	<p><b>Division</b></p> <p>Sharing and Grouping Problems including Remainders</p>	<p>Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts</p> <p>Patterns and rules of divisibility</p> <p>Division with remainders – sharing</p> <p>Division with remainders – grouping</p> <p>Problems using division in context</p> <p>Solving problems using division in context</p>





## Year 2 Medium Term Planning Summer

### **Multiplication and division:**

Problem Solving for All Operations (including Fractions)  
Multiplication and Division – Equality and Balance  
Mental Calculation Review

### **Addition & Subtraction:**

Problem Solving for All Operations (including Fractions)  
Mental Calculation Review  
Place Value and Written Calculation Review

### **Measures:**

Time – Telling the Time to the Nearest 5 Minutes

### **Fractions:**

Finding Halves, Quarters and Thirds of Amounts  
Finding Halves, Quarters and Thirds of Shapes  
Finding Three-Quarters of Shapes and Amounts  
Equivalence  
Fractions of Continuous Quantities  
Problem Solving for All Operations (including Fractions)

### **Properties of shape:**

Geometry – Properties of 2-D and 3-D shape, Classifying and Sorting  
Geometry – Symmetry  
Geometry – Sequencing  
Rotation and Right Angles

**Problem-solving and reasoning should be integrated into all activities.**

**Opportunities to explain and justify opinions and make explanations should be incorporated into planning.**

**Children should be challenged and extended through the problems they are given to solve.**

Block	Strand	Learning Objectives – End of Year targets to broken down in weekly plans
1	<b>Fractions</b>  Finding Halves, Quarters and Thirds of Shapes	Recognise, find, name and write fractions $\frac{1}{3}$ , $\frac{1}{4}$ , $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity  Recognising shapes split equally into halves, quarters and thirds Finding $\frac{1}{2}$ , $\frac{1}{4}$ and $\frac{3}{4}$ of 2-D shapes Finding fractions of amounts within the context of shape Finding what fraction of a shape is given
2	<b>Fractions</b>  Finding Three-Quarters of Shapes and Amounts	Recognise, find, name and write fractions $\frac{1}{3}$ , $\frac{1}{4}$ , $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity  Finding $\frac{3}{4}$ of a shape Finding $\frac{3}{4}$ of an amount Finding $\frac{3}{4}$ in the context of finding amounts within shapes
3	<b>Fractions</b>	Write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$



	<b>Equivalence</b>	<p>Exploring 12 , 24 equivalence in shapes</p> <p>Exploring 12 , 24 equivalence using Cuisenaire rods</p> <p>Comparing 12 , 24 equivalence on a number line</p> <p>Equivalence: 12 , 24 of amounts within shapes</p> <p>Equivalence: 12 , 24 of amounts</p>
<b>4</b>	<b>Fractions</b>  Continuous Quantities	<p>Recognise, find, name and write fractions <math>\frac{1}{3}</math>, <math>\frac{1}{4}</math>, <math>\frac{2}{4}</math> and <math>\frac{3}{4}</math> of a length, shape, set of objects or quantity</p> <p>Counting fractions in context</p> <p>Counting in fractions using a number line</p> <p>Fractions of length</p> <p>Fractions of capacity</p> <p>Fractions of time</p>
<b>5</b>	<b>Time</b>  Telling the Time to the Nearest 5 Minutes	<p>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</p> <p>Telling the time – o'clock and half past</p> <p>Telling the time – quarter past the hour</p> <p>Telling the time – quarter to the hour</p> <p>Telling the time to the nearest 5 minutes</p> <p>Intervals of time</p>
<b>6</b>	<b>Problem Solving</b>  All Operations (including Fractions)	<p>Solve problems with addition and subtraction:</p> <ul style="list-style-type: none"> <li>- using concrete objects and pictorial representations, including those involving numbers , quantities and measures</li> <li>- applying their increasing knowledge of mental and written methods</li> </ul> <p>Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts</p> <p>Choosing an efficient strategy – addition and subtraction</p> <p>Choosing an efficient strategy – multiplication and division</p> <p>Identifying the unknown</p> <p>Drawing to solve problems</p> <p>Pictorial representation and part part whole – fractions of amounts</p> <p>Making connections between the numbers <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math> or <math>\frac{1}{3}</math>; the fraction words; fractions of amounts of shapes</p> <p>Finding <math>\frac{3}{4}</math> in the context of worded problems</p>
<b>7</b>	<b>Multiplication and Division</b>  Equality and Balance	<p>Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts</p> <p>Equality in multiplication</p> <p>Keeping the balance</p> <p>Comparing calculations</p> <p>Using division to identify equality in multiplication</p>
<b>8</b>	<b>Geometry</b>  Properties of 2-D and 3-D shape, Classifying and Sorting	<p>Identify and describe the properties of 2-D shapes, including the number of sides and symmetry in a vertical line. Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces</p> <p>Naming 2-D shapes and their properties</p> <p>Naming 3-D shapes and their properties</p> <p>Identifying and classifying shapes by their properties</p>
<b>9</b>	<b>Geometry</b>  Symmetry	<p>Identify and describe the properties of 2-D shapes, including the number of sides and symmetry in a vertical line</p> <p>Linking symmetry to halving</p> <p>Identifying and sorting shapes - symmetry</p> <p>Drawing symmetrical patterns and shapes</p>



<b>10</b>	<b>Mental Calculation Review</b>	<p>Solve problems with addition and subtraction:</p> <ul style="list-style-type: none"> <li>- using concrete objects and pictorial representations, including those involving numbers, quantities and measures</li> <li>- applying their increasing knowledge of mental and written methods</li> </ul> <p>Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts</p> <p>Reasoning about addition Identifying the unknown Checking using the inverse Simplifying repeated addition using multiplication</p>
<b>11</b>	<b>Geometry</b>  Sequencing	<p>Order and arrange combinations of mathematical objects in patterns and sequences</p> <p>Linear sequences Patterns with shapes</p>
<b>12</b>	<b>Geometry</b>  Rotation and Right Angles	<p>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</p> <p>right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)</p> <p><math>\frac{1}{4}</math>, <math>\frac{1}{2}</math> and <math>\frac{3}{4}</math> turns clockwise and anti-clockwise <math>\frac{1}{4}</math> turn = a right angle Providing and following directions</p>
<b>13</b>	<b>Place Value and Written Calculation Review</b>	<p>Add and subtract numbers using concrete objects, pictorial representations, and mentally, including:</p> <ul style="list-style-type: none"> <li>- a two-digit number and ones</li> <li>- a two-digit number and tens</li> <li>- two, two-digit numbers</li> </ul> <p>Read and write numbers to at least 100 in numerals and in words</p> <p>Problem solving with addition Checking for mistakes in written addition and subtraction Counting in tens and hundreds to 1000 Hundreds and some more 3-digit numbers – part whole</p>



## Year 3 Medium Term Planning **Autumn**

### **Number - Number and place value:**

Place Value and Regrouping

Counting On and Back in Ones, Tens and Hundred

Estimation, Magnitude and Rounding

### **Number – Addition and Subtraction:**

Mental Fluency – Addition

Mental Fluency – Subtraction

Fact Families and Applying the Inverse

Written Addition

Written Subtraction

Problem Solving – Worded Problems

### **Measurement:**

Comparison, Estimation and Magnitude

Statistics – Interpreting Bar Charts and Table Methods

### **Geometry:**

Angles, Right Angles and Estimation

Perpendicular and Parallel Lines, Vertical and Horizontal Lines

2-D Shape – Properties and Drawing

Perimeter Including Problem Solving Using Written and Mental

**Problem-solving and reasoning should be integrated into all activities.**

**Opportunities to explain and justify opinions and make explanations should be incorporated into planning.**

**Children should be challenged and extended through the problems they are given to solve.**

Block	Strand	Learning Objectives – End of Year targets to broken down in weekly plans
<b>1</b>	<b>Place Value and Regrouping</b>	<p>Recognise the place value of each digit in a three-digit number (hundreds, tens and ones)</p> <p>10 ones are equal to 1 ten and 10 tens are equal to 1 hundred</p> <p>Comparing representations of 3-digit numbers</p> <p>Varying the order and practice</p> <p>Regrouping 3-digit numbers flexibly</p> <p>Securing equality (for example 3 hundreds are equal to 30 tens and 300 ones)</p>
<b>2</b>	<b>Counting On and Back in Ones, Tens and Hundreds</b>	<p>Find 10 or 100 more or less than a given number</p> <p>Counting on and back in tens with two digit numbers (and crossing 100)</p> <p>Counting on and back in tens and hundreds (2- and 3-digit numbers)</p> <p>Regrouping through hundreds</p> <p>Counting on and back in ones, tens and hundreds including regrouping</p>
<b>3</b>	<b>Estimation, Magnitude and Rounding</b>	<p>Compare and order numbers up to 1000</p> <p>Use value of digits to compare and order numbers (recognise most significant digit)</p> <p>Estimate the order of 3-digit numbers</p> <p>Estimate number magnitude</p> <p>Round numbers to nearest ten and hundred</p>



4	<b>Measures – Comparison, Estimation and Magnitude</b>	<p>Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)</p> <p>Develop understanding of appropriate units</p> <p>Reading scales</p>
5	<b>Mental Fluency – Addition</b>	<p>Add and subtract numbers mentally, including:</p> <ul style="list-style-type: none"> <li>- a three-digit number and ones</li> <li>- a three-digit number and tens</li> <li>- a three-digit number and hundreds</li> </ul> <p>Adding 3-digit numbers to ones, tens and hundreds with no regrouping</p> <p>Adding 3-digit numbers to ones with regrouping ('Think 10')</p> <p>Adding 2- and 3-digit numbers to tens with regrouping ('Think 100')</p> <p>Mental addition with 2- and 3-digit numbers</p> <p>Understanding sum and commutativity in addition</p> <p>Finding complements and reordering</p> <p>Using compensation to add</p> <p>Using multiple strategies to add mentally</p>
6	<b>Mental Fluency – Subtraction</b>	<p>Add and subtract numbers mentally, including:</p> <ul style="list-style-type: none"> <li>- a three-digit number and ones</li> <li>- a three-digit number and tens</li> <li>- a three-digit number and hundreds</li> </ul> <p>Subtraction is not commutative</p> <p>Place value subtraction</p> <p>Subtracting hundreds, tens and ones with no regrouping</p> <p>Subtracting ones from 2-digit numbers with regrouping</p> <p>Subtracting multiples of ten from 3-digit number with regrouping</p> <p>Subtracting 2-digit numbers from 2-digit numbers with regrouping</p> <p>Mental subtraction with 2-digit numbers – varied practice</p> <p>Compensation</p>
7	<b>Fact Families and Applying the Inverse</b>	<p>Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction</p> <p>Commutative or not commutative</p> <p>Creating fact families</p> <p>Using fact families and the inverse operation to find missing number</p> <p>Solving more complex missing number problems</p>
8	<b>Written Addition</b>	<p>Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction</p> <p>Columnar recording related to place value</p> <p>Formal written method with no regrouping (exchange)</p> <p>Formal written method with regrouping of ones</p> <p>Regrouping tens and ones</p> <p>Using measurement units within addition</p> <p>Language of addition</p>
9	<b>Written Subtraction</b>	<p>Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction</p> <p>Formal written method with no regrouping (exchange)</p> <p>Subtraction – regrouping (exchange) tens into ones only</p> <p>Subtraction – regrouping hundreds into tens only</p> <p>Subtraction – regrouping hundreds and tens</p> <p>Missing number subtraction problems</p> <p>Mixed and multi-strategy practice</p>
10	<b>Problem Solving –</b>	<p>Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction</p> <p>Identifying the part or whole unknown in simple worded problems</p>



	<b>Worded Problems</b>	Understanding start, change and result problems Mixed Practice Understanding multi-step part whole worded problems Understanding simple comparison problems
<b>11</b>	<b>Interpreting Bar Charts and Tables</b>	Interpret and present data using bar charts, pictograms and tables  Purpose of bar charts Completing bar charts from information provided – identifying intervals of scales Interpreting and inferring information from bar charts (including multi-step questions) More complex bar chart problems
<b>12</b>	<b>Angles, Right Angles and Estimation</b>	Recognise that angles are a property of shape or a description of a turn 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  Angles are measures of a turn Comparing and ordering angles (using right angle as a benchmark) Identify internal angles in 2-D shapes Classifying shapes using internal angles as a property
<b>13</b>	<b>Perpendicular and Parallel Lines, Vertical and Horizontal Lines</b>	Identify horizontal and vertical lines and pairs of perpendicular and parallel lines  Perpendicular lines are lines that will meet at a right angle to each other (where lines are vertical and horizontal) Perpendicular lines are straight lines that will meet at a right angle to each other (where lines could also be diagonals) Parallel lines are straight lines that have a constant distance between them and will never meet at a point Parallel sides and sides that are perpendicular to each other in shapes and parallel and perpendicular lines on diagrams Vertical lines are perpendicular to the horizon and horizontal lines are parallel to the horizon
<b>14</b>	<b>2-D Shape – Properties and Drawing</b>	Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them  Connect the number of sides to the number of angles (and vertices) in a polygon Classifying regular and irregular polygons Drawing and constructing polygons (property focus on vertices and congruence) Drawing and constructing polygons (properties)
<b>15</b>	<b>Perimeter Including Problem Solving Using Written and Mental Methods</b>	Measure the perimeter of simple 2-D shapes  Understand perimeter as distance around the sides of a closed shape – constructing perimeter and introducing the language of length and width Calculate perimeter in rectilinear shapes (presented on 1cm <sup>2</sup> squared paper) Know that different rectangles can have equal perimeters. Finding the perimeter of regular shapes Finding perimeter of rectangles and regular polygons by measuring Solving problems and providing proof with perimeter



## Year 3 Medium Term Planning **Spring**

### **Multiplication and division:**

Multiplication – 3, 4 and 8 Times Tables including Counting

Division – 1, 2, 3, 5, 4 and 8 Times Tables

Multiplication – Strategy, Associative and Distributive Laws

Multiplication and Division Worded Problems

Multiplication – Multiplying Multiples of Ten

Multiplication – Formal Written Multiplication

### **Fractions**

Fractions – Finding Fractions of Discrete and Continuous Quantities

Ordering and Comparing Fractions

Adding and Subtracting Fractions with the Same Denominators

Fractions – Problem Solving with Unit and Non-Unit Fractions

### **Measurement:**

Statistics – Pictograms and Scaled Bar Charts

**Problem-solving and reasoning should be integrated into all activities.**

**Opportunities to explain and justify opinions and make explanations should be incorporated into planning.**

**Children should be challenged and extended through the problems they are given to solve.**

Block	Strand	Learning Objectives – End of Year targets to broken down in weekly plans
<b>1</b>	<b>Multiplication</b>  3, 4 and 8 Times Tables including Counting	Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables  Understand that counting up in multiples is also repeated addition Learning multiplication facts through building arrays Learning multiplication facts through visualising arrays (developing recall) Developing counting strategies for 3x and 4x tables
<b>2</b>	<b>Division</b>  1, 2, 3, 5, 4 and 8 Times Tables	Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables  Division by sharing using manipulatives Division by grouping using manipulatives Linking multiplication and division using arrays Learning division facts through visualising arrays (developing recall) Rehearsing division facts
<b>3</b>	<b>Multiplication</b>  Strategy, Associative and Distributive Laws	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  Doubling and halving Halving two-digit numbers Associative law Distributive law up to 10 x 10 Distributive law for 2-digit numbers
<b>4</b>	<b>Statistics</b>  Pictograms and Scaled Bar Charts	Interpret and present data using bar charts, pictograms and tables  Making links between bar charts and pictograms Completing pictograms from information provided Interpreting and inferring information from pictograms (including multi-step questions)





5	<b>Multiplication and Division</b> Worded Problems	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  Worded problems based on equal groups Rate worded problems involving money Combination worded problems Mixed bar model examples including measures and time
6	<b>Fractions</b> Finding Fractions of Discrete and Continuous Quantities	Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators  Exploring unit fractions and non-unit fractions Find and write fractions of a discrete set of objects Find and write fractions as continuous quantities A range of fraction worded problems including multi-step
7	<b>Fractions</b> Ordering and Comparing Fractions	Recognise and show, using diagrams, equivalent fractions with small denominators Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators  Finding fractions of shapes Compare and order unit fractions Compare and order fractions with the same denominator Exploring equivalence Showing equivalence with accurate diagrams
8	<b>Fractions</b> Adding and Subtracting Fractions with the Same Denominators	Add and subtract fractions with the same denominator within one whole (for example, $5/7 + 1/7 = 6/7$ )  Finding complements of 1 Adding fractions with the same denominator Subtracting fractions with the same denominator Applying the addition and subtraction of fractions with the same denominator
9	<b>Fractions</b> Problem Solving with Unit and Non-Unit Fractions	. Solve problems  Problem solving involving fractions of shape Ordering and comparing a range of fractions Mixed worded problems including multi-step
10	<b>Multiplication</b> Multiplying Multiples of Ten	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  Explore the effect of scaling by ten Explore the effect of scaling by ten on place value Multiplying multiples of ten by one-digit where the product is less than 100 Multiplying multiples of ten by one-digit where the product is greater than 100
11	<b>Multiplication</b> Formal Written Multiplication	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  Multiplying two-digit numbers by ones using distributive law (no regrouping) Multiplying two-digit numbers by ones using distributive law (with regrouping) Introducing short multiplication with no regrouping Short multiplication with regrouping of ones into tens only Short multiplication with regrouping of ones and tens



## Year 3 Medium Term Planning **Summer**

### **Number and place value:**

Place Value and Decimals – Ten Times Greater and Ten Times Smaller

Place Value and Decimals – Regrouping

Place Value and Decimals – Estimation, Comparing and Rounding

### **Addition and Subtraction:**

Securing the Four Operations with Whole Number including Problem Solving

### **Multiplication and division:**

Division Problem Solving – Sharing and Grouping

Two and Three-Digit Numbers by One-Digit Numbers including Halving

Multiplication, Division and Fractions – Scaling and Correspondence Problems

Securing the Four Operations with Whole Number including Problem Solving

Long Division

### **Measurement:**

Hours, Minutes, Seconds, Days, Weeks, Months, Years

Telling the Time (Analogue and Digital) and Estimation

Duration

Measures – Measuring and Problem Solving

### **Geometry:**

3-D Shape – Building and Identifying Properties

**Problem-solving and reasoning should be integrated into all activities.**

**Opportunities to explain and justify opinions and make explanations should be incorporated into planning.**

**Children should be challenged and extended through the problems they are given to solve.**

Block	Strand	Learning Objectives – End of Year targets to broken down in weekly plans
1	<b>Division Problem Solving</b>  Sharing and Grouping	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  Division by sharing – part whole problems Division by sharing – comparison problems Division by grouping Using known facts to solve missing number problems
2	<b>Division</b>  Two and Three-Digit Numbers by One-Digit Numbers including Halving	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  Place value revision Halving 2- and 3-digit numbers Sharing 2- and 3-digit numbers by ones with no regrouping Sharing 2- and 3-digit numbers by ones with regrouping Linking base facts to division
3	<b>Multiplication, Division and Fractions</b>	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



	Scaling and Correspondence Problems	Solving integer scaling problems Varying the unknown within correspondence problems Mixed problems involving fractions
4	<b>Division</b>  Long Division	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  Revision of quotients and remainders when sharing Introducing the long division method (sharing ones) Long division of tens and ones with no regrouping Long division of tens and ones with regrouping
5	<b>Time</b>  Hours, Minutes, Seconds, Days, Weeks, Months, Years	Know the number of seconds in a minute and the number of days in each month, year and leap year  Understand how days, months and years are related Finding complements and intervals of 60
6	<b>Time</b>  Telling the Time (Analogue and Digital) and Estimation	Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks Estimate and read time with increasing accuracy to the 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  Recognising intervals on an analogue clock Telling the time to the nearest minute on an analogue and digital clock Understanding Roman numerals on clocks Understanding am and pm Estimating time and using timers
7	<b>Time</b>  Duration	Compare durations of events  Time to the nearest hour Adding hours and minutes Subtracting hours and minutes Duration of time Finding unknown start and end times from given duration of events Comparing the duration of events
8	<b>Securing the Four Operations with Whole Number including Problem Solving</b>	Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction Add and subtract amount of money to give change, using both £ and 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  Securing addition and subtraction Applying multiplication and division, including working systematically Adding amounts of money Subtracting amounts of money Worded problems involving money
9	<b>Place Value and Decimals</b>  Ten Times Greater and Ten Times Smaller	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  Ten times smaller than 1 is a tenth Recording tenths as decimal numbers Finding unknown tenths from known wholes Finding unknown wholes from known tenths
10	<b>Place Value and Decimals</b>	Recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10



	Regrouping	Place value with decimal numbers Regrouping decimal numbers
<b>11</b>	<b>Place Value and Decimals</b>  Estimation, Comparing and Rounding	Count up and down in tenths Compare and order numbers up to 1000 Order and compare place value of numbers with 1 decimal place Estimate decimal numbers Round decimal numbers to nearest whole numbers
<b>12</b>	<b>Measures</b>  Measuring and Problem Solving	Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)  Measuring and comparing lengths Measuring and comparing mass, volume and capacity Using and comparing mixed units Adding and subtracting involving measures Measure problems involving scaling
<b>13</b>	<b>3-D Shape</b>  Building and Identifying Properties	Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them  Building three-dimensional shapes Recognising three-dimensional shapes in different orientations Describing the faces of polyhedra Describing three-dimensional shapes



## Year 4 Medium Term Planning **Autumn**

### **Number - Number and place value**

Place Value – Order and Compare Numbers Beyond 1000

Rounding, Estimation and Magnitude

Counting in Multiples of 6, 7, 9, 25 and 1000

### **Number – Addition and Subtraction:**

Securing Addition and Subtraction Mental Fluency

Securing Formal Written Addition and Subtraction Fluency

Problem Solving Including Measures to Apply Place Value, Mental Strategies and Arithmetic Laws

### **Number – Multiplication and division:**

Multiplication and Division Facts (Times Tables)

Factor Pairs, Integer Scaling and Correspondence Problems

Multiply and Divide a One or Two-digit Number by 10 and 100

### **Number – Fractions:**

### **Measurement:**

Measure – Conversion of Units

Measures – Compare, Estimate and Calculate

Discrete and Continuous Data (Time Graphs), Including Application of Scales and Division

Perimeter

**Problem-solving and reasoning should be integrated into all activities.**

**Opportunities to explain and justify opinions and make explanations should be incorporated into planning.**

**Children should be challenged and extended through the problems they are given to solve.**

Block	Strand	Learning Objectives – End of Year targets to broken down in weekly plans
1	<b>Place Value – Order and Compare Numbers Beyond 1000</b>	<p>Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens and ones)</p> <p>Understanding that 10 hundreds are equal to 1 thousand, 10 tens are equal to 1 hundred and 10 ones are equal to 1 ten</p> <p>Finding 1000 more or less than a given number</p> <p>Comparing and ordering 4-digit numbers</p> <p>Regrouping 4-digit numbers flexibly</p>
2	<b>Rounding, Estimation and Magnitude</b>	<p>Identify, represent and estimate numbers using different representations</p> <p>Round any number to the nearest 10, 100 or 1000</p> <p>Estimate number magnitude</p> <p>Identify and estimate numbers using different representations</p> <p>Rounding numbers to the nearest 10, 100 or 1000</p> <p>Comparing and rounding numbers to the nearest 10, 100 and 1000</p>
3	<b>Securing Addition and Subtraction Mental Fluency</b>	<p>Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction <b>where appropriate</b></p> <p>Mental strategy comparison – considering appropriateness and efficiency</p> <p>Developing estimation to support calculation</p> <p>Extending regrouping 'Think 100' and 'Think 1000' to adding 3- and 4-digit numbers</p> <p>Introducing equal sum as a mental strategy</p> <p>Regrouping the minuend (the number being reduced) for subtraction</p> <p>Introducing equal difference for mental subtraction</p> <p>Mixed addition and subtraction practice</p>
4	<b>Securing Formal Written Addition and</b>	<p>Add and subtract number with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate</p>



	<b>Subtraction Fluency</b>	<p>Formal addition method with no regrouping (thousands, hundreds, tens and ones)</p> <p>Formal addition method with regrouping in hundreds, tens and ones</p> <p>Formal addition method with regrouping in hundreds, tens and ones causing a further thousand</p> <p>Finding missing numbers in formal written addition</p> <p>Revisiting formal written subtraction (decomposition)</p> <p>Formal written subtraction with regrouping of thousands (decomposition)</p> <p>Missing number and written subtraction problems</p> <p>Mixed practice</p>
5	<b>Counting in Multiples of 6, 7, 9, 25 and 1000</b>	<p>Count in multiples of 6, 7, 9, 25 and 1000</p> <p>Understand that counting up in multiples is also repeated addition</p> <p>Extend counting in multiples knowledge to 25s</p>
6	<b>Multiplication and Division Facts (Times Tables)</b>	<p>Recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math></p> <p>Creating and regrouping arrays for multiplication (distributive law)</p> <p>Learning multiplication facts through building arrays (developing recall)</p> <p>Rehearsing and recalling multiplication facts; making links and spotting patterns</p> <p>Rehearsing division facts</p> <p>Laws of divisibility to help with division facts</p> <p>Strategies for calculating multiplication facts</p>
7	<b>Factor Pairs, Integer Scaling and Correspondence Problems</b>	<p>Recognise and use factor pairs</p> <p>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>Understanding and finding factors.</p> <p>Solving integer scaling and correspondence problems</p> <p>Exploring correspondence problems</p> <p>Solving a range of correspondence problems</p> <p>Creating their own correspondence problems</p>
8	<b>Problem Solving Including Measures to Apply Place Value, Mental Strategies and Arithmetic Laws</b>	<p>Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why</p> <p>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>Addition and subtraction problems involving measures</p> <p>Exploring multiplication</p> <p>Linking multiplication and division on the bar model</p> <p>Exploring division</p> <p>Rearranging multiplication and division models and word problems</p> <p>Two step problems involving all four operations</p>
9	<b>Multiply and Divide a One or Two-digit Number by 10 and 100</b>	<p>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</p> <p>Multiplying and dividing by 10 – investigating the effect</p> <p>Multiplying and dividing by 10 – understanding the effect</p> <p>Dividing by 10 – using decimal and fraction notation</p> <p>Multiplying and dividing by 100 – understanding the effect, using decimal notation</p> <p>Multiplying and dividing by 10 and 100 – applying learning and reasoning ideas</p>
10	<b>Measure – Conversion of Units</b>	<p>Convert between different units of measure [for example, kilometre to metre; hour to minute]</p> <p>Converting between units of length – understanding the calculations needed</p> <p>Converting between units of mass and capacity – understanding the calculations needed</p> <p>Converting hours to minutes</p> <p>Converting minutes to hours and hours to minutes</p> <p>Converting between units of time – understanding the calculations needed</p>
11	<b>Measures – Compare,</b>	<p>Estimate, compare and calculate different measures</p>



	<b>Estimate and Calculate</b>	<p>Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days</p> <p>Measuring, estimating and comparing length Measuring, comparing and estimating with mass and capacity Calculating with length, mass and capacity Calculating time addition (hours and minutes) Calculating time subtraction (hours and minutes) Calculating duration of time (hours and minutes)</p>
<b>12</b>	<b>Discrete and Continuous Data (Time Graphs), Including Application of Scales and Division</b>	<p>Interpret and present discrete and continuous data using appropriate graphical methods, including charts and time graphs</p> <p>Interpreting discrete data – reading scales on pictograms and bar charts Interpreting continuous data Presenting data – choosing the best way to present it</p>
<b>13</b>	<b>Perimeter</b>	<p>Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres</p> <p>Revisiting existing knowledge about perimeter Calculating perimeter of rectangle shapes with missing sides Solving problems involving perimeter of rectilinear shapes with missing information Solving correspondence problems involving perimeter of rectilinear shapes</p>





## Year 4 Medium Term Planning Spring

### Number - Number and place value:

Decimal Numbers

Calculating with Decimals

Problem Solving involving Decimals to Two Decimal Places

### Number – Addition and Subtraction:

### Number – Multiplication and division:

Multiply Two and Three-digit Numbers by a One-digit Number Using a Formal Written Layout

Divide Two and Three-digit Numbers by a One-digit Number Using a Formal Written Layout

### Number - fractions:

Add and Subtract Fractions with the Same Denominator

Finding Fractions of Quantities

Fractions in the Context of Measure

Equivalent Fractions, Ordering and Comparing

### Measurement:

Measure: Money

### Geometry – Properties of shape:

Properties of Shape

Symmetry

**Problem-solving and reasoning should be integrated into all activities.**

**Opportunities to explain and justify opinions and make explanations should be incorporated into planning.**

**Children should be challenged and extended through the problems they are given to solve.**

Block	Strand	Learning Objectives – End of Year targets to broken down in weekly plans
1	<b>Properties of Shape</b>	<p>Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes</p> <p>Revisiting properties of lines Properties of shape – vocabulary focus Classifying quadrilaterals Drawing quadrilaterals</p>
2	<b>Symmetry</b>	<p>Identify lines of symmetry in 2-D shapes presented in different orientations</p> <p>Recognising reflective symmetry in simple shapes Recognising lines of symmetry in regular and irregular polygons Constructing symmetrical shapes Constructing quadrilaterals with a specific number of lines of symmetry</p>
3	<b>Decimal Numbers</b>	<p>Count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten Round decimals with one decimal place to the nearest whole number Compare numbers with the same number of decimal places up to two decimal places Recognise and write decimal equivalents to <math>\frac{1}{4}</math>; <math>\frac{1}{2}</math>; <math>\frac{3}{4}</math></p> <p>Place value with decimal numbers Regrouping decimal numbers Order and compare place value of numbers with up to 2 decimal places Estimate decimal numbers Decimal equivalences to tenths, hundredths, <math>\frac{1}{4}</math>, <math>\frac{1}{2}</math>, and <math>\frac{3}{4}</math> Round decimal numbers to nearest whole numbers <math>\times</math> and <math>\div</math> by 10 and 100</p>
4	<b>Calculating with Decimals</b>	<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</p>



		<p>Finding complements to 1</p> <p>Regrouping for addition</p> <p>Regrouping for subtraction</p> <p>Formal written addition</p> <p>Formal written subtraction</p> <p>Comparing strategies</p>
5	<b>Measure: Money</b>	<p>Estimate, compare and calculate different measures, including money in pounds and pence</p> <p>Calculating with money – mental and written addition</p> <p>Calculating with money – mental and written subtraction</p>
6	<b>Problem Solving involving Decimals to Two Decimal Places</b>	<p>Solve simple measure and money problems involving fractions and decimals to two decimal places</p> <p>Non-routine problem solving using decimals – using a simpler case to solve a complex problem</p> <p>Non-routine problem solving using decimals – finding all possibilities</p> <p>Routine problem solving</p>
7	<b>Add and Subtract Fractions with the Same Denominator</b>	<p>Add and subtract fractions with the same denominator</p> <p>Identify equal parts and whole and find complements of 1</p> <p>Add and subtract fractions with no regrouping</p> <p>Add fractions with regrouping</p> <p>Subtract fractions with regrouping</p>
8	<b>Finding Fractions of Quantities</b>	<p>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</p> <p>Scaling unit fractions to find fractions of quantities</p> <p>Exploring the models for finding fractions of quantities</p> <p>Using the whole and number of equal parts to find fractions of quantities</p> <p>Use fractional reasoning to solve whole unknown problems</p> <p>Relating fractions to comparison problems</p>
9	<b>Fractions in the Context of Measure</b>	<p>Solve simple measure and money problems involving fractions and decimals to two decimal places</p> <p>Recognising familiar fractions expressed as measures</p> <p>Ordering measures involving fractions</p> <p>Mixed worded problems involving a range of measures</p>
10	<b>Equivalent Fractions, Ordering and Comparing</b>	<p>Recognise and show, using diagrams, families of common equivalent fractions</p> <p>Compare and order a range of fractions</p> <p>Showing equivalence with accurate diagrams</p> <p>Exploring families of common equivalent fractions</p> <p>Create equivalent fractions by multiplying and dividing</p>
11	<b>Multiply Two and Three-digit Numbers by a One-digit Number Using a Formal Written Layout</b>	<p>Multiply two-digit and three-digit numbers by a one-digit number using formal written Layout</p> <p>Multiplying multiples of ten by one-digit numbers</p> <p>Multiplying multiples of one hundred by one-digit numbers</p> <p>Multiplying two and three-digit numbers by one-digit numbers using distributive law</p> <p>Formal written multiplication with no regrouping</p> <p>Formal written multiplication with regrouping in one column</p> <p>Formal written multiplication with regrouping in one or more columns</p>
12	<b>Divide Two and Three-digit Numbers by a One-digit Number</b>	<p>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</p> <p>Long division with no regrouping</p> <p>Long division with regrouping hundreds into tens</p> <p>Long division with regrouping hundreds into tens and tens into ones</p> <p>Mixed division rehearsal</p>

	Using Formal Written Layout	a	
--	-----------------------------	---	--



## **Number and place value:**

Roman Numerals to 100

Negative Numbers – Counting through Zero and Calculating in Context

## **Addition and Subtraction:**

Application and Problem Solving – Developing Operation Sense

## **Multiplication and division:**

Multiplication and Division Review

Application and Problem Solving – Developing Operation Sense

## **Fractions:**

Fractions Review

## **Measurement:**

Read, Write, Calculate and Convert Time on Analogue and Digital 12-Hour and 24-Hour Clocks

Interpret and Present Continuous and Discrete Data, Solve Problems incorporating Measures

## **Geometry:**

Angles

Properties of Triangles

Coordinates in the First Quadrant and Translations

Position and Direction, incorporating Angles and Plotting Points of a Shape

Find the area of rectilinear shapes by counting squares

**Problem-solving and reasoning should be integrated into all activities.**

**Opportunities to explain and justify opinions and make explanations should be incorporated into planning.**

**Children should be challenged and extended through the problems they are given to solve.**

Block	Strand	Learning Objectives – End of Year targets to broken down in weekly plans
1	<b>Time</b>  Read, Write, Calculate and Convert Time on Analogue and Digital 12-Hour and 24-Hour Clocks	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  12- and 24-hour clock Understanding and calculating duration Find unknown start or end times when duration is known Step 4: Converting hours, minutes and seconds Step 5: Converting days to weeks and months to years
2	<b>Statistics</b>  Interpret and Present Continuous and Discrete Data, Solve Problems incorporating Measures	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  Understanding and interpreting discrete data Identifying increase and decrease in line graphs Time and distance graphs Line graphs with constant relationship between variables
3	<b>Roman Numerals to 100</b>	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>Roman numerals to 20</p> <p>Roman numerals to 100</p> <p>Reasoning with Roman numerals</p>
4	<p><b>Negative Numbers</b></p> <p>Counting through Zero and Calculating in Context</p>	<p>Count backwards through zero to include negative numbers</p> <p>An introduction to negative numbers</p> <p>Counting backwards through zero</p> <p>Solving simple problems involving negative numbers</p>
5	<p><b>Geometry</b></p> <p>Angles</p>	<p>Identify acute and obtuse angles and compare and order angles up to two right angles by size</p> <p>Comparing and ordering angles using the benchmark of a right angle</p> <p>Identifying acute and obtuse angles</p> <p>Identifying acute and obtuse angles within geometric shapes</p>
6	<p><b>Geometry</b></p> <p>Properties of Triangles</p>	<p>Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes</p> <p>Describing the properties of triangles</p> <p>Classifying triangles (equilateral, scalene or isosceles)</p> <p>Classifying triangles according to more than one property</p>
7	<p><b>Geometry</b></p> <p>Coordinates in the First Quadrant and Translations</p>	<p>Describe positions on a 2-D grid as coordinates in the first quadrant</p> <p>Describe movements between positions as translations of a given unit to the left / right and up / down</p> <p>Using coordinates to describe position on a 2-D grid</p> <p>Describing movements between positions as translations</p>
8	<p><b>Geometry</b></p> <p>Position and Direction, incorporating Angles and Plotting Points of a Shape</p>	<p>Plot specified points and draw sides to complete a given polygon</p> <p>Plotting points to create polygons</p> <p>Identifying coordinates to create polygons</p>
9	<p><b>Multiplication and Division Review</b></p>	<p>Recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math></p> <p>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</p> <p>Multiply two-digit and three-digit numbers by a one-digit number using formal written Layout</p> <p>Times tables review</p> <p>Multiplying and dividing by 10 / 100 and 1000</p> <p>Related times tables facts</p> <p>Short multiplication review</p> <p>Long division review</p> <p>Short division</p>
10	<p><b>Area</b></p>	<p>Find the area of rectilinear shapes by counting squares</p> <p>Find area of rectilinear shapes by counting squares</p> <p>Relate finding area of rectilinear shapes to arrays up to <math>12 \times 12</math></p> <p>Problem solving with area</p> <p>Area and perimeter</p>
11	<p><b>Fractions Review</b></p>	<p>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</p>



		Adding and subtracting fractions beyond 1 Fractions of quantities with varied unknown values Deconstructing fraction problems involving measures
<b>12</b>	<b>Application and Problem Solving</b>  Developing Operation Sense	Count in multiples of 6, 7, 9, 25 and 1000 Count backwards through zero to include negative numbers Solve number and practical problems that involve all of the above and with increasingly large positive numbers  Number sequences Number patterns and relationships Working systematically and finding all possibilities Solving logic problems



## Year 5 Medium Term Planning **Autumn**

### **Number - Number and place value:**

Place Value and Rounding of Large Numbers  
Interpret Negative Numbers  
Place Value of Numbers with up to Three Decimal Places  
Prime and Composite Numbers  
Solve Problems Involving Knowledge of Key Facts

### **Number – Addition and Subtraction:**

Add and Subtract Using a Range of Strategies  
Add and Subtract Using Formal Written Methods

### **Number – Multiplication and division:**

Multiply and Divide by 10, 100 and 1,000  
Properties of Number – Multiples, Factors and Common Factors  
Multiply and Divide Mentally  
Formal Written Method for Multiplication  
Formal Written Method of Short Division  
Compare and Order Fractions  
Adding and Subtracting Fractions

### **Number – Fractions:**

Equivalent Fractions

**Problem-solving and reasoning should be integrated into all activities.**

**Opportunities to explain and justify opinions and make explanations should be incorporated into planning.**

**Children should be challenged and extended through the problems they are given to solve.**

Block	Strand	Learning Objectives – End of Year targets to broken down in weekly plans
1	<b>Place Value and Rounding of Large Numbers</b>	<p>Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit</p> <p>Value of digits within large numbers Number magnitude and conservation of a million Comparing numbers Ordering numbers Counting in steps of powers of 10 Rounding numbers</p>
2	<b>Interpret Negative Numbers</b>	<p>Interpret negative numbers in context, count forwards and backwards</p> <p>Counting forwards and backwards across zero Reading scales involving negative numbers Application in context</p>
3	<b>Place Value of Numbers with up to Three Decimal Places</b>	<p>Read, write, order and compare numbers with up to 3 decimal places</p> <p>Recognising and comparing tenths and hundredths Comparing numbers with up to 2 decimal places Read, write and compare numbers with up to 3 decimal places Ordering numbers with up to 3 decimal places Rounding decimals (2 decimal places to the nearest whole number and to 1 decimal place)</p>





## MEDIUM TERM PLANNING OVERVIEWS

4	<b>Multiply and Divide by 10, 100 and 1,000</b>	<p>Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000</p> <p>ultiplying by 10, 100 and 1000</p> <p>Multiplying by 10, 100 and 1000 (including decimals)</p> <p>Dividing by 10, 100 and 1000 (including decimals)</p> <p>Multiplying and dividing by 10, 100 and 1000</p>
5	<b>Properties of Number – Multiples, Factors and Common Factors</b>	<p>Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.</p> <p>Identifying multiples</p> <p>Comparing multiples and factors</p> <p>Identifying all factors of a number</p> <p>Identifying common factors</p>
6	<b>Prime and Composite Numbers</b>	<p>Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers</p> <p>Establish whether a number up to 100 is prime and recall prime numbers up to 19</p> <p>Identifying what makes a number prime</p> <p>Prime or composite?</p> <p>Building composite numbers from prime factors</p>
7	<b>Multiply and Divide Mentally</b>	<p>Multiply and divide numbers mentally drawing upon known facts</p> <p>Revisit strategies for recalling known facts</p> <p>Use known multiplication facts to derive others</p> <p>Doubling and halving to use known facts</p> <p>Divisibly rules</p> <p>Regrouping to support division</p> <p>Select an appropriate strategy for mental multiplication or division</p>
8	<b>Solve Problems Involving Knowledge of Key Facts</b>	<p>Solve number and practical problems that involve place value</p> <p>Solve problems using knowledge of factors and multiples</p> <p>Working backwards</p> <p>Find a starting point</p>
9	<b>Add and Subtract Using a Range of Strategies</b>	<p>Add and subtract numbers mentally with increasingly large numbers</p> <p>Using rounding for estimation</p> <p>Using place value to add and subtract</p> <p>Regrouping to add and subtract</p> <p>Using equal sum for addition</p> <p>Using equal difference for subtraction</p> <p>Selecting an appropriate strategy</p>
10	<b>Add and Subtract Using Formal Written Methods</b>	<p>Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)</p> <p>Using rounding for estimation</p> <p>Column addition</p> <p>Column subtraction</p> <p>Reasoning about column addition and subtraction</p>
11	<b>Formal Written Method for Multiplication</b>	<p>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</p> <p>Revision of formal written method for a 2 or 3-digit number by a 1-digit number</p> <p>Short multiplication of a 3- or 4-digit number by a single digit</p> <p>Long multiplication of a 3- or 4-digit number by a 2-digit number</p> <p>Comparing long multiplication and short multiplication</p> <p>Rehearsal and application of the formal written methods of short and long multiplication</p>
12	<b>Formal Written Method of Short Division</b>	<p>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</p>



		<p>Division as sharing Sharing and grouping Short division for numbers up to 4-digits Expressing remainders as fractions Expressing remainders as decimals Interpreting remainders</p>
<b>13</b>	<b>Equivalent Fractions</b>	<p>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 <math>&gt; 1</math> as a mixed number [ for example, <math>2/5 + 4/5 = 6/5 = 11/5</math>]</p> <p>Identify and name fractions Recognise and create equivalent fractions Improper fractions and mixed numbers Convert improper fractions to mixed numbers Application of mixed numbers and improper fractions Equivalence of tenths and hundredths Match equivalent fractions in a range of contexts</p>
<b>14</b>	<b>Compare and Order Fractions</b>	<p>Compare and order fractions whose denominators are all multiples of the same number</p> <p>Compare fractions to 12 Compare fractions using visual representations Identify equivalent fractions where denominators are all multiples of the same number Compare fractions whose denominators are all multiples of the same number Order fractions whose denominators are all multiples of the same number Order fractions whose denominators are all multiples of the same number where simplification can be used Order fractions of amounts</p>
<b>15</b>	<b>Adding and Subtracting Fractions</b>	<p>Add and subtract fractions with the same denominator and multiples of the same number</p> <p>Add and subtract fractions with the same denominator Add and subtract fractions whose denominators are all multiples of the same number Add and subtract fractions <math>&gt; 1</math> whose denominators are all multiples of the same number Application of adding and subtracting fractions</p>



## Year 5 Medium Term Planning **Spring**

### **Number - Number and place value:**

Percentages

Problem Solving – Percentages

### **Number – Addition and Subtraction:**

Problem Solving – All Four Operations

### **Number – Multiplication and division:**

Problem Solving – All Four Operations

### **Number - fractions:**

Multiplying Fractions by Whole Numbers

Fraction Problem Solving

### **Measurement:**

Measure – Converting Units of Measure

Area

Volume and Capacity

Perimeter

### **Geometry – Properties of shape:**

3-D Shapes from 2-D Representations

Reflection and Translation

Estimate, Compare, Measure and Draw Angles

Identify Unknown Angles

**Problem-solving and reasoning should be integrated into all activities.**

**Opportunities to explain and justify opinions and make explanations should be incorporated into planning.**

**Children should be challenged and extended through the problems they are given to solve.**

Block	Strand	Learning Objectives – End of Year targets to broken down in weekly plans
<b>1</b>	<b>Problem Solving – All Four Operations</b>	<p>Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign</p> <p>Drawing a model to support reasoning</p> <p>Interpreting statistical information</p> <p>Working backwards as a strategy</p> <p>Select an appropriate strategy to solve a problem</p> <p>Apply an appropriate strategy to solve a problem</p>
<b>2</b>	<b>Multiplying Fractions by Whole Numbers</b>	<p>Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</p> <p>Multiply unit fractions by a whole number where the answer is <math>&lt;1</math></p> <p>Multiply fractions by whole numbers where the answer is <math>&gt;1</math></p> <p>Evaluate the effectiveness of representations to solve problems</p> <p>Multiply mixed numbers by whole numbers</p> <p>Multiply fractions by whole numbers in a range of contexts</p>



3	<b>Fraction Problem Solving</b>	<p>This sequence applies the previous NC statements from 5LS13, 5LS14, 5LS15 and 5LS17 (below) to ensure that pupils can combine and use this knowledge to solve problems</p> <p>Combining learning about fractions to solve a problem Using bar modelling to represent a problem involving fractions</p>
4	<b>Measure – Converting Units of Measure</b>	<p>Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) Solve problems involving converting between units of time</p> <p>Decimal and fraction equivalences of metric measure Converting from a larger unit to a smaller unit Converting from a smaller unit to a larger unit Mixed conversion practice Scaling measures</p>
5	<b>Area</b>	<p>Calculate and compare the area of rectangles (including squares) using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>) and estimate the area of irregular shapes</p> <p>Develop strategies to estimate the area of irregular shapes Estimate area using standard units Calculate and compare the area of rectangles Find unknown measures when calculating area Work backwards to calculate measures from a given area</p>
6	<b>Volume and Capacity</b>	<p>Estimate volume [for example, using 1 cm<sup>3</sup> blocks to build cuboids (including cubes)] and capacity [for example, using water ]</p> <p>Square numbers and area Build cube numbers Investigate the volume of cuboids Estimating volume and capacity</p>
7	<b>Percentages</b>	<p>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</p> <p>Understand that per cent relates to the number of parts per hundred Express parts per hundred as fractions, decimals and percentages Use scaling to identify percentages Identify common equivalent fractions, decimals and percentages Calculate percentages by finding fractions of Develop strategies to calculate percentages</p>
8	<b>Problem Solving Percentages</b>	<p>Solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{5}</math>, <math>\frac{2}{5}</math>, <math>\frac{4}{5}</math> and those with a denominator of a multiple of 10 or 25</p> <p>Convert between fractions, decimals and percentages Draw a model to calculate a percentage Draw a model to calculate the whole Solve a range of percentage problems</p>
9	<b>3-D Shapes from 2-D Representations</b>	<p>Identify 3-D shapes, including cubes and other cuboids, from 2-D representations</p> <p>Define cuboids and cubes Understand nets Draw nets using given measurements</p>
10	<b>Reflection and Translation</b>	<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>Translate shapes Reflect patterns and shapes Translate and reflect in the first quadrant</p>
11	<b>Perimeter</b>	<p>Measure and calculate the perimeter of composite rectilinear shapes in centimetres and Metres</p> <p>Calculate the perimeter of rectilinear figures (rectangles and squares) Calculate the perimeter of composite rectilinear shapes</p>



		Solve problems using knowledge of perimeter and area
<b>12</b>	<b>Estimate, Compare, Measure and Draw Angles</b>	<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</p> <p>Recap of prior angles learning including right angles and turns</p> <p>Name, compare and order acute, obtuse, reflex and right angles</p> <p>Measure angles accurately with a protractor</p> <p>Estimate angles in degrees and check by measuring</p> <p>Draw angles</p>
<b>13</b>	<b>Identify Unknown Angles</b>	<p>Identify:</p> <ul style="list-style-type: none"> <li>- angles at a point and one whole turn (total 360°)</li> <li>- angles at a point on a straight line and <math>\frac{1}{2}</math> a turn (total 180°)</li> <li>- other multiples of 90</li> </ul> <p>Angles in a right angle and on a straight line</p> <p>Angles around a point or whole turn</p>



## Year 5 Medium Term Planning **Summer**

### **Number and place value:**

Roman Numerals

### **Addition and Subtraction:**

Solving Problems involving the Four Operations

### **Multiplication and division:**

Formal Division and Multiplication in Increasingly Complex Problems

Strategies for Multiplication and Division (Mental and Written)

Solving Problems involving the Four Operations

### **Fractions:**

Solving Problems involving Scaling by Simple Fractions and Rates

Fractions, Decimals and Percentages – Problem Solving

### **Measurement:**

Conversion of Imperial and Metric Units of Measure

Reading Timetables and Calculating with Time

Statistics – Solve Comparison, Sum and Difference Problems using Information in a Line Graph

Statistics – Interpreting and Evaluating Information Presented in Charts and Tables

### **Geometry:**

Distinguish between Regular and Irregular Polygons

Use Properties of Rectangles

**Problem-solving and reasoning should be integrated into all activities.**

**Opportunities to explain and justify opinions and make explanations should be incorporated into planning.**

**Children should be challenged and extended through the problems they are given to solve.**

Block	Strand	Learning Objectives – End of Year targets to broken down in weekly plans
1	<b>Formal Division and Multiplication in Increasingly Complex Problems</b>	<p>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</p> <p>Divide numbers up to 4 digits by one-digit numbers using the formal written method of short division and interpret remainders appropriately for the context</p> <p>Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy</p> <p>Interpreting remainders</p> <p>Creating word problems involving different division contexts</p> <p>Applying formal multiplication to solve problems</p>
2	<b>Strategies for Multiplication and Division</b>	<p>Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates</p> <p>Revisiting and deepening understanding of remainders</p> <p>Solving missing number division problems</p> <p>Multiplication and division – developing strategy discussion and operational sense</p>
3	<b>Solving Problems involving</b>	<p>Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates</p> <p>Use all four operations to solve problems involving measure [for example, length, mass,</p>



	<b>Scaling by Simple Fractions and Rates</b>	<p>volume, money] using decimal notation including scaling</p> <p>Model scaling and correspondence problems Scaling by simple fractions Scaling by simple rates Scale drawings</p>
4	<b>Conversion of Imperial and Metric Units of Measure</b>	<p>Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation including scaling</p> <p>Metric conversion Metric scale drawings Imperial units of measure – pints Imperial units of measure – inches Imperial units of measure – pounds</p>
5	<b>Fractions, Decimals and Percentages Problem Solving</b>	<p>Solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{5}</math>, <math>\frac{2}{5}</math>, <math>\frac{4}{5}</math> and those with a denominator of a multiple of 10 or 25 Read and write decimal numbers as fractions [ for example, <math>0.71 = \frac{71}{100}</math> ] Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign</p> <p>Revising proportions and scaling Problem solving using scales Comparing proportions represented differently Solving multi-step problems</p>
6	<b>Reading Timetables and Calculating with Time</b>	<p>Complete, read and interpret information in tables, including timetables</p> <p>Exploring what we know about telling the time and converting units of time Reading and interpreting timetables Completing missing information in timetables Solving problems involving completing and reading timetables and calculating with time</p>
7	<b>Solving Problems involving the Four Operations</b>	<p>Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign</p> <p>Exploring confusing language – dangers of trigger words and distractors Focus on structure – translating language into a mathematical model What could the question be? Revisiting working backwards</p>
8	<b>Distinguish between Regular and Irregular Polygons</b>	<p>Distinguish between regular and irregular polygons based on reasoning about equal sides and angles</p> <p>Classify polygons as regular or irregular Revisit 2-D shape vocabulary including regular and irregular Construct regular polygons, including using a protractor</p>
9	<b>Use Properties of Rectangles</b>	<p>Use the properties of rectangles to deduce related facts and find missing lengths and Angles</p> <p>Calculating missing lengths in rectangles and shapes or patterns including rectangles Using knowledge of rectangles and angles to calculate missing angles</p>
10	<b>Statistics</b>	<p>Solve comparison, sum and difference problems using information presented in a line Graph</p> <p>Use data to make comparisons and calculate sum or difference Use information in a line graph to compare and calculate Solve problems using information in line graphs</p>
	Solve Comparison, Sum and Difference Problems using Information in a Line Graph	





<b>11</b>	<b>Statistics</b>  Interpreting and Evaluating Information Presented in Charts and Tables	<b>Begin to decide which representations of data are most appropriate and why</b>  Compare representations of data in text and tables Choose appropriate data representations Evaluate different data representations
<b>12</b>	<b>Roman Numerals</b>	<b>Read Roman numerals to 1000 (M) and recognise years written in Roman numerals</b>  Read and write Roman numerals to 1000 Recognising times and years involving Roman numerals Investigating and using Roman numerals in problems



## Year 6 Medium Term Planning **Autumn**

### **Number - Number and place value:**

Place Value

Multiply and Divide by 10, 100 and 1,000

Choosing Effective Mental Calculation Strategies

Application of Factors, Multiples and Primes

Calculating Percentages

### **Number – Addition and Subtraction:**

Choosing Effective Mental Calculation Strategies

Problem Solving with Four Operations

### **Number – Multiplication and division:**

Problem Solving with Four Operations

Multiply and Divide by 10, 100 and 1,000

Formal Written Method of Short Division

Formal Written Method of Multiplication

### **Number – Fractions**

Equivalent Fractions

Comparing and Ordering Fractions

Adding and Subtracting Fractions

Fraction and Decimal Equivalents

Fractions, Decimals and Percentages

### **Measurement:**

Area of Parallelograms and Triangles

### **Geometry – Properties of shape**

Properties of Shape

**Problem-solving and reasoning should be integrated into all activities.**

**Opportunities to explain and justify opinions and make explanations should be incorporated into planning.**

**Children should be challenged and extended through the problems they are given to solve.**

Block	Strand	Learning Objectives – End of Year targets to broken down in weekly plans
1	<b>Place Value</b>	<p>Solve number problems and practical problems that involve place value</p> <p>Read and write large numbers</p> <p>Counting and regrouping large numbers</p> <p>Comparing and ordering numbers</p> <p>Comparing numbers including to 3 decimal places</p> <p>Negative numbers</p> <p>Rounding numbers</p>
2	<b>Multiply and Divide by 10, 100 and 1,000</b>	<p>Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to three decimal places</p> <p>Develop fluency of multiplying and dividing by 10, 100 and 1000</p> <p>Application in the context of measure</p>



3	<b>Choosing Effective Mental Calculation Strategies</b>	<p>Perform mental calculations, including with mixed operations and large numbers</p> <p>Reasoning the efficiency of mental strategy Using estimation to check mental calculations Applying and combining mental strategies to solve problems</p>
4	<b>Problem Solving with Four Operations</b>	<p>Solve problems involving addition, subtraction, multiplication and division</p> <p>Using a bar model to solve multi-step problems Solve problems by working backwards Finding a starting point / prioritising Select an appropriate problem solving strategy</p>
5	<b>Application of Factors, Multiples and Primes</b>	<p>Identify common factors, common multiples and primes</p> <p>Clarify terminology relating to properties of number Recognise common multiples Apply knowledge of common multiples Apply knowledge of factors and multiples</p>
6	<b>Equivalent Fractions</b>	<p>Use common factors to simplify fractions; use common multiples to express fractions in the same denomination</p> <p>Identify common factors when looking at pairs of numbers Simplify fractions Identify common multiples Change fractions to have common denominators</p>
7	<b>Comparing and Ordering Fractions</b>	<p>Compare and order fractions, including fractions <math>&gt;1</math></p> <p>Reasoning about ordering fractions Compare fractions using visual representations Compare fractions with consideration of their proximity to 0, half or 1 Compare fractions by changing to a common denominator Order fractions Order fractions in a range of contexts</p>
8	<b>Adding and Subtracting Fractions</b>	<p>Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions</p> <p>Use pictorial representations to show addition of fractions Use pictorial representations to show subtraction of fractions Addition and subtraction of fractions including mixed numbers Application of adding and subtracting fractions</p>
9	<b>Fraction and Decimal Equivalents</b>	<p>Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, <math>\frac{3}{8}</math>]</p> <p>Associate fractions with division Decimal and fraction equivalents</p>
10	<b>Fractions, Decimals and Percentages</b>	<p>Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts</p> <p>Making connections between fractions, decimals and percentages Recall and use equivalences</p>
11	<b>Calculating Percentages</b>	<p>Solve problems involving the calculation of percentages [for example, of measures such as 15% of 360] and the use of percentages for comparison</p> <p>Explore a range of strategies to calculate percentages Solve problems involving the calculation of percentages</p>
12	<b>Formal Written Method of Multiplication</b>	<p>Multiply multi-digit numbers up to 4-digits by a two-digit whole number using the formal written method of long multiplication</p> <p>Revision of short multiplication for a 3- or 4-digit number by a 1-digit number Revision of long multiplication for a 3- or 4-digit number by a 2-digit number Revision of short multiplication for a 3- or 4-digit number by a 2-digit number Generating new facts from known facts</p>



		<p>Formal written method of multiplication involving numbers with up to 2 decimal places multiplied by a 1-digit number</p> <p>Application of the formal written method for multiplication</p>
<b>13</b>	<b>Area of Parallelograms and Triangles</b>	<p>Calculate the area of parallelograms and triangles</p> <p>Calculating the area of rectilinear and composite shapes (Year 5 revision)</p> <p>Finding the area of right-angled triangles</p> <p>Calculating the area of triangles</p> <p>Calculating the area of parallelograms</p> <p>Solving problems involving area of rectangles, triangles and parallelograms</p>
<b>14</b>	<b>Formal Written Method of Short Division</b>	<p>Use written division methods in cases where the answer has up to two decimal places</p> <p>Understanding short division</p> <p>Short division where answers have up to 2 decimal places</p> <p>Short division with decimal remainders up to 2 decimal places</p> <p>Prove decimal fraction equivalents using short division</p>
<b>15</b>	<b>Properties of Shape</b>	<p>Compare and classify geometric shapes based on their properties and sizes</p> <p>Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius</p> <p>Recognise, describe and build simple 3-D shapes, including making nets</p> <p>Using the language of 2-D shapes</p> <p>Classifying 2-D shapes – triangles</p> <p>Classifying 2-D shapes – quadrilaterals</p> <p>Parts of circles</p> <p>Using the relationship between radius and diameter to solve problems</p> <p>Naming and identifying the properties of 3-D shapes</p> <p>Building 3-D shapes from nets</p>



## Year 6 Medium Term Planning **Spring**

### **Number - Number and place value:**

Ratio and Proportion

### **Number – Addition and Subtraction:**

### **Number – Multiplication and division:**

Formal Written Method for Long Division

### **Algebra:**

Order of Operations and Algebra

Algebra and Sequences

### **Number - fractions:**

Multiplying Fractions

Dividing Proper Fractions by Whole Numbers

Fraction Problem Solving

### **Measurement:**

Exploring Relationships Between Perimeter and Area

Interpret Line Graphs and Pie Charts

Measures

Volume

### **Geometry – Properties of shape:**

Recognise and Find Angles

Reflection and Translation

**Problem-solving and reasoning should be integrated into all activities.**

**Opportunities to explain and justify opinions and make explanations should be incorporated into planning.**

**Children should be challenged and extended through the problems they are given to solve.**

Block	Strand	Learning Objectives – End of Year targets to broken down in weekly plans
1	<b>Order of Operations and Algebra</b>	<p>Use their knowledge of the order of operations to carry out calculations involving the four operations</p> <p>Use simple formulae</p> <p>Express missing number problems algebraically</p> <p>Why we need the order of operations</p> <p>Develop order of operations and start to write formulas</p> <p>Deepen understanding of order of operations – abstract calculations</p> <p>Considering division and indices (powers) in order of operations</p> <p>Connecting algebraic equations to known models (addition and subtraction)</p> <p>Connecting algebraic equations to known models (multiplication and division)</p> <p>Simplifying equations to find the unknown</p> <p>Solving word problems involving algebra</p> <p>Solving problems involving algebra – abstract calculations</p>
2	<b>Formal Written</b>	<p>Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division (and short division where appropriate) and interpret</p>



	<b>Method for Long Division</b>	<p>remainders as whole number remainders, fractions, or by rounding, as appropriate for the context</p> <p>Comparing short and long division layout Long division for numbers up to 4 digits Interpreting remainders as whole numbers Expressing remainders as fractions Expressing remainders as decimals</p>
<b>3</b>	<b>Exploring Relationships Between Perimeter and Area</b>	<p>Recognise that shapes with the same areas can have different perimeters and vice versa</p> <p>Consolidate understanding of perimeter Consolidate finding the area of rectilinear shapes, parallelograms and triangles Investigate shapes with the same area but different perimeters and vice-versa Solve problems involving area and perimeter</p>
<b>4</b>	<b>Recognise and Find Angles</b>	<p>Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles</p> <p>Recognise and name angles Investigate vertically opposite angles Find missing angles from known facts</p>
<b>5</b>	<b>Reflection and Translation</b>	<p>Draw and translate simple shapes on the coordinate plane, and reflect them in the axes</p> <p>Draw and label axes in all four quadrants Plot positions on the full coordinate grid Draw and label shapes in all four quadrants Translate shapes in all four quadrants Reflect shapes in all four quadrants</p>
<b>6</b>	<b>Multiplying Fractions</b>	<p>Multiply simple pairs of proper fractions, writing the answer in its simplest form [ for example, <math>\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}</math> ]</p> <p>Understand the effect of multiplying with proper fractions Represent multiplication with simple pairs of proper fractions Multiply simple pairs of proper fractions Apply multiplication of fractions in a range of contexts</p>
<b>7</b>	<b>Dividing Proper Fractions by Whole Numbers</b>	<p>Divide proper fractions by whole numbers [for example, <math>13 \div 2 = 16</math> ]</p> <p>Understand the relationship between fractions and division Understand division of fractions by whole numbers in context Unitary fractions divided by whole numbers - word problems Non-unitary fractions divided by whole numbers Solving mixed problems</p>
<b>8</b>	<b>Fraction Problem Solving</b>	<p>This sequence applies the previous NC statements from 6LS6, 6LS7, 6LS8, 6LS21 and 6LS22 (below) to ensure that pupils can combine and use this knowledge to solve problems</p> <p>Reason about fractions in problems Solve mixed fraction problems</p>
<b>9</b>	<b>Ratio and Proportion</b>	<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 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>Simplifying ratios Different types of comparisons: part to part and part to whole Solving problems with ratio – given the ratio and one part or the whole Solving problems with ratio – given the ratio and the difference Solving problems with ratio – given the parts Scaling problems Scale factors</p>
<b>10</b>	<b>Volume</b>	<p>Calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm<sup>3</sup>) and cubic metres (m<sup>3</sup>), and extending to other units</p>



		<p>[for example mm<sup>3</sup> and km<sup>3</sup> ]</p> <p>Recognise when it is possible to use formulae for area and volume of shapes</p> <p>Visualise and calculate the volume of cubes</p> <p>Calculate and compare volumes</p> <p>Estimate volume</p>
<b>11</b>	<b>Measures</b>	<p>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</p> <p>Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate</p> <p>Convert between miles and kilometres</p> <p>Clarify what is known about measures and converting them</p> <p>Apply knowledge of measures and conversions to solving problems</p> <p>Explore the link between miles and kilometres (imperial and metric units of length)</p>
<b>12</b>	<b>Statistics – Interpret Line Graphs and Pie Charts</b>	<p>Interpret and construct pie charts and line graphs and use these to solve problems</p> <p>Understanding pie charts</p> <p>Interpreting a simple pie chart</p> <p>Reviewing line graphs</p> <p>Interpreting comparison graphs</p> <p>Conversion graphs</p>
<b>13</b>	<b>Algebra and Sequences</b>	<p>Generate and describe linear number sequences</p> <p>Find pairs of numbers that satisfy an equation with two unknown variables</p> <p>Enumerate possibilities of combinations of two variables</p> <p>Build and describe linear sequences</p> <p>Identify missing terms - start and end number given</p> <p>Find pairs of numbers that satisfy an equation with two unknown variables</p>





## Year 6 Medium Term Planning **Summer**

### **Algebra:**

Further Algebra

### **Addition and Subtraction:**

Financial Maths and Enterprise

### **Multiplication and division:**

Financial Maths and Enterprise

### **Measurement:**

Statistics - Calculate and Interpret Mean Average

Constructing Pie Charts

Statistical Representations

**Problem-solving and reasoning should be integrated into all activities.**

**Opportunities to explain and justify opinions and make explanations should be incorporated into planning.**

**Children should be challenged and extended through the problems they are given to solve.**

Block	Strand	Learning Objectives – End of Year targets to broken down in weekly plans
<b>1</b>	<b>Statistics</b>  Calculate and Interpret Mean Average	Calculate and interpret the mean as an average  Understand and calculate the mean Apply understanding of the mean
<b>2</b>	<b>Application of Previous Years' Learning</b>	Draw 2-D shapes using given dimensions and angles (Year 6) Measure, compare, add and subtract: lengths (m/cm/mm) (Year 3) Draw given angles, and measure them in degrees (o) (Year 5) Read Roman numerals to 1000 (M) and recognise years written in Roman numerals (Year 5) Read, write and convert time between analogue and digital 12 and 24-hour clocks (Year 4) Complete, read and interpret information in tables, including timetables (Year 5)  Draw 2-D shapes including scaling Revise Roman numerals Revise reading, writing, converting and applying understanding of time
<b>3</b>	<b>Application of Known Facts and Calculation Strategies</b>	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  Identifying what we already know and how to use it (arithmetic focus) Avoiding common errors when calculating mentally Using estimation to check answers are reasonable
<b>4</b>	<b>Constructing Pie Charts</b>	Interpret and construct pie charts and line graphs and use these to solve problems  Deciding whether a pie chart is appropriate Constructing simple pie charts. Part one – the process and constructing circles Constructing simple pie charts. Part two – dividing up a circle into the segments



<b>5</b>	<b>Statistical Representation s</b>	<p>Interpret and construct pie charts and line graphs and use these to solve problems</p> <p>Is all data fair? More misleading graphs Considering data which distorts Applying skills</p>
<b>6</b>	<b>Further Algebra</b>	<p>Generate and describe linear number sequences</p> <p>Building sequences to generalise Linking sequences and algebra Describe the relationship between term and term number</p>
<b>7</b>	<b>Financial Maths and Enterprise</b>	<p>Solve number and practical problems Solve problems involving addition, subtraction, multiplication and division</p> <p>Introduction to budgeting <i>Enterprise lessons</i> Introduction to the project Initial business ideas and market research Product planning Creating a business plan and pitching Making it, marketing it and selling it Evaluation and reflection</p>
<b>8</b>	<b>Maths Preparation for KS3</b>	<p>Reflect on what you are like as a mathematician Show your calculation strategy choices Show connections and depth of understanding</p>