

Mathematical aspect	Mathematical themes	National Curriculum statement
	Arithmetic and fluency need to be embedded into daily learning	
Week 1	<p>Arithmetic, number and calculation, word problems. Identifying the correct digit when rounding to the nearest 10, 100 or 1000 Mental and written addition and subtraction of large numbers Mental calculations strategies – making good choices about what to do in my head, jottings and when a written method is needed. Recognising the arithmetic in the question so they can choose and effective method. Eg 2999 – 1242 being seen as 3000 as 1243. Using effective processors so arithmetic is secure and applying bond knowledge. Efficiency and accuracy, and procedural competence Using rounding to check the reasonableness of the answer Understanding the columns Understanding the process of where to start and how to track through the written method No crossing of boundaries Crossing of boundaries (generating an exchanging digit) Written methods for multiplication and division: $HTU \times \div TU$ and $HTU \times \div U$ Using expanded and compact multiplication to secure success and allow for seeing what is happening Short methods with remainders Long division – from statement teach to transfer this into the notation. Then use a partial table to record times tables facts of the divisor. Following the processes including bringing the digit down. Complex word problems using the four operations and bar model diagrams. Learn that making bar models of the same size can be helpful, but that one must remember to change the information in the problem to match. Models of the same size can make solving word problems simpler. Use high-order reasoning and picture drawing.</p>	<p>Revision of the following NC statements. Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. Divide numbers up to 4 digits by a two-digit number and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. Perform mental calculations, including with mixed operations and large numbers. Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. Solve problems which require answers to be rounded to specified degrees of accuracy. Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison. Solve problems involving similar shapes where the scale factor is known or can be found. Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</p>

	<p>Be able to identify the operations needed</p> <p>Understand all of the words in the problems and visualise what they mean.</p> <p>Interpret bar models and determine which calculation should be carried out.</p> <p>Check their answers against information provided in the problem</p> <p>Organise multiple pieces of information</p> <p>Relate word problems to the equation given</p>	
Week 3	<p>Volume</p> <p>Identify 1 cm³.</p> <p>Refer to the space a solid takes up as volume.</p> <p>Calculate the volume of a cuboid by counting the number of small cubes.</p> <p>Use units of measure for volume, e.g. cm³</p> <p>Recognise different solids can have the same volume.</p> <p>Identify layers of cubes in solids.</p> <p>Can add layers of cubes to find the volume of solids.</p> <p>Find volume by multiplying dimensions.</p> <p>Recreate 3-D shapes from a pictorial model using cubes</p> <p>Calculate how many cubes (of different sizes) would fit inside a container.</p> <p>Estimate capacity in a pictorial representation.</p> <p>Explain what capacity is.</p> <p>Relate capacity to volume.</p> <p>Recognise pints as a way of measuring capacity.</p> <p>Recognise that volume is measured in cubes.</p> <p>Compare the volume of different solids.</p> <p>Know the relationship between area and volume.</p> <p>Calculate the volume of a cuboid using a formula.</p> <p>Identify the dimensions of a cuboid</p> <p>Use thinking and reasoning skills to determine the best way to estimate volume.</p>	<p>Recognise when it is possible to use formulae for area and volume of shapes.</p> <p>Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending to other units [for example, mm³ and km³].</p>
Weeks 4-6	<p>Revision and preparation for SATS</p>	

SATS		
Week 8	<p>Cross-curriculum learning Staircase project Enterprise project Fire and Ice Topic based learning</p>	
Week 9	<p>Algebra Learn some of the conventions of algebra in the context of patterns and real-life problems. Describe patterns and using a letter to denote a variable. Write expressions using the four operations and fractions, Look for patterns and determine rules. Write and evaluate algebraic expressions Use formulae to solve problems in real-life contexts. Use word problems to write equations with two unknown Solve a range of equations. Identify the relationship between one term and the next in a pattern. Describe the rule in a pattern with words. Relate a symbol to an unknown value. Use concrete materials to continue patterns. Explain how a pattern progresses. Make predictions based on their generalisations. Express a rule using a symbol or letter in place of numbers. Use letters, symbols and numbers to express the relationships and patterns in numbers. Evaluate simple algebraic expressions. Avoid misconception that repeated addition means the number should be added to n, rather than multiplied. Use a formula to find specific terms in a sequence</p>	<p>Use simple formulae. Generate and describe linear number sequences. Express missing number problems algebraically. Find pairs of numbers that satisfy an equation with two unknowns. Enumerate possibilities of combinations of two variables.</p>

<p>Week 10</p>	<p>Ratio Compare quantities, including numbers, objects, fractions and mass In the Use bar models and concrete materials to compare amounts. Use both pictorial and abstract multiplication and division Simplifying and comparing ratios. Apply what they know about fractions and percentages to ratio problems. Avoid misconception fractions and ratios (e.g. If the ratio of boys to girls is 1: 3, the fraction of children who are boys is $\frac{1}{4}$ not $\frac{1}{3}$). Describe a ratio using a pictorial representation. Compare different amounts of objects using fractions. Compare different amounts of objects using percentages. Use the term 'ratio'. Record ratio using the ':' symbol. Read ratios as the relationship of one number to another number. Find a common factor between large numbers to help them simplify ratios. Use times tables to see how to simplify a ratio. Simplify a ratio in multiple ways. Understand the relationship between the radius and diameter of a circle</p>	<p>Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison. Solve problems involving similar shapes where the scale factor is known or can be found. Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</p>
<p>Weeks 11-12</p>	<p>Transition Cross-curriculum learning</p>	
<p>Seasonal theme:</p>		