

## St Leonard's Primary School Mathematics Yearly Rolling Programme

The intent of our mathematics curriculum is to provide children with a foundation for understanding number, reasoning, thinking logically and problem solving with resilience so that they are fully prepared for the future. We intend that all children, regardless of their starting point, will maximise their academic achievement and leave St Leonard's with an appreciation and enthusiasm for Maths, resulting in a lifelong positive relationship with number. We ensure that we deliver a high-quality maths curriculum that is both challenging and problems

It is essential that Mathematics is embedded throughout all strands of the National Curriculum, and we intend for our pupils to be able to apply their mathematical knowledge to all other subjects, showing them that maths is essential to everyday life and enabling them to become confident mathematicians who are not afraid to take risks.

Lessons are planned and sequenced so that new knowledge and skills build on what has been taught before. Teachers follow the White Rose Maths Hub materials and staff also refer to the Calculation Policy when teaching formal methods, understanding that sometimes children find their own efficient methods along the way. Lessons may be personalised to address the individual needs and requirements for a class, but coverage is maintained. Due to the nature of our cohort, the mixed aged planning from White Rose is used in key stages where necessary.

To further develop the children's fluency, reasoning and problem-solving, we use mastery materials which correlate to the White Rose lessons and further develops children's understanding of a concept and the links between maths topics. We also use a range of planning resources including those provided by the NCETM and NRICH to enrich our children's maths diet.

All children have access to their own personal account of 'Times Tables Rockstar' where they can compete against other pupils and classes in school and each week, in class, from Year 1 upwards, there will be a Times Tables focus to give children the opportunity to practise and improve their rapid recall skills with facts $12 \times 12$.

The impact of our mathematics curriculum is that children understand the relevance and importance of what they are learning in relation to real world concepts. Children know that maths is a vital life skill that they will rely on in many areas of their daily life. Children are happy learners who talk enthusiastically about their learning and who eager to further their progress in maths. They have a positive view of maths and know that it is reasonable to make mistakes because this can strengthen their learning through the journey to finding an answer. Children are confident to 'have a go' and choose the equipment they need to help them to learn along with the strategies they think are best suited to each problem. Our children have a good understanding of their strengths and targets for development in maths and what they need to do to improve.

Our maths books evidence work of a high standard of which children clearly take pride; the components of the teaching sequences demonstrate good coverage of fluency, reasoning and problem solving. Our school standards are high, we moderate our books both internally and externally and children are achieving well. The use of White Rose resources ensures consistent teaching practices throughout the school that are more effective for pupil progress.

Curriculum Coverage

| EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Block 1 Match, sort and compare | Block 1 Place Value (Within 10) | Block 1 Place Value | Block 1 Place Value | Block 1 Place Value | Block 1 Place Value | Block 1 Place Value |
| Weeks 1 and 2 Getting to know you. <br> Opportunities for settling in, introducing the provision, and getting to know the children. <br> Key times of the day, class routines. <br> Positional language. <br> Block 1 <br> Match and sort objects. Identify sets. <br> Explore sorting techniques and rules. <br> Comparing amounts. | Count numbers to 10 in numerals. <br> Identify and represent numbers using objects and pictorial representations. <br> Read and write numbers from 1 to 10 in numerals and words. <br> Given a number, identify one more and one less. | Count in steps of 2, 3, and 5 from 0 , and in tens from any number, forward and backward. <br> Read and write numbers to at least 100 in numerals and in words. <br> Identify, represent, and estimate numbers using different representations, including the number line. <br> Recognise the place value of each digit in a twodigit number (tens, ones). <br> Compare and order numbers from 0 up to 100 ; use and = signs. <br> Use place value and number facts to solve problems. | Count from 0 in multiples of $4,8,50$ and 100 . <br> Find 10 or 100 more or less than a given number. <br> identify, represent, and estimate numbers using different representations. <br> Read and write numbers up to 1000 in numerals and in words. <br> Recognise the place value of each digit in a threedigit number (hundreds, tens, ones). <br> Compare and order numbers up to 1000. <br> Solve number problems and practical problems involving these ideas. | Count in multiples of 6, 7, 9,25 and 1000. <br> Count backwards through zero to include negative numbers. <br> Identify, represent, and estimate numbers using different representations. <br> 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. <br> Find 1000 more or less than a given number. <br> Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones). <br> Order and compare numbers beyond 1000. <br> Round any number to the nearest 10, 100 or 1000 <br> Solve number and practical problems that involve all of the above and with increasingly large positive numbers. | Count forwards or backwards in steps of powers of 10 for any given number up to 1000000. <br> Count forwards and backwards with positive and negative whole numbers, including through zero. <br> Read Roman numerals to 1000 (M) and recognise years written in Roman numerals. <br> Read, write, order, and compare numbers to at least 1000000 and determine the value of each digit. <br> Interpret negative numbers in context. <br> Round any number up to 1000000 to the nearest 10, 100, 1000, 10000 and 100000. <br> Solve number problems and practical problems that involve all of the above. | Read, write, order, and compare numbers up to 10000000 and determine the value of each digit. <br> Round any whole number to a required degree of accuracy. <br> Use negative numbers in context and calculate intervals across zero. <br> Solve number and practical problems that involve all of the above |


|  | Block 2 <br> Talk about measure and pattern | Block 2 <br> Addition and Subtraction (Within 10) | Block 2 <br> Addition and Subtraction | Block 2 <br> Addition and Subtraction | Block 2 <br> Addition and Subtraction | Block 2 <br> Addition and Subtraction | Block 2 <br> Four operations |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Compare mass, size and capacity. <br> Explore, continue and create simple patterns. | Add and subtract one-digit to 10 , including zero. <br> Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7=$ ? -9 . | Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: <br> * A two-digit number and ones <br> * A two-digit number and tens <br> * Two two-digit numbers <br> * Adding three one-digit numbers <br> Solve problems with addition and subtraction: <br> * Using concrete objects and pictorial representations, including those involving numbers, quantities, and measures. <br> * Applying their increasing knowledge of mental and written methods. | Add and subtract numbers mentally, including- <br> * A three-digit number and ones. <br> * A three-digit number and tens. <br> * A three-digit number and hundreds. <br> Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. <br> Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. | Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. <br> Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. | Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction). <br> Add and subtract numbers mentally with increasingly large numbers. <br> Solve addition and subtraction multistep problems in contexts, deciding which operations and methods to use and why. <br> Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign. | Perform mental calculations, including with mixed operations and large numbers. <br> Use their knowledge of the order of operations to carry out calculations involving the four operations. <br> Solve addition and subtraction multistep problems in contexts, deciding which operations and methods to use and why. <br> Identify common factors, common multiples, and prime numbers. <br> Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. <br> Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. <br> Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret |



| Block 3 <br> It's me 1, 2, 3 | Block 3 Shape | Block 3 Shape | Block 3 <br> Multiplication and Division | Block 3 <br> Area | Block 3 <br> Multiplication and Division | Block 3 and 4 Fractions |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Find, subitise and count 1,2 and 3. <br> Find 1 more and 1 less. <br> Composition of 1, 2 and 3. | Recognise and name common 2-D shapes [for example, rectangles (including squares), circles and triangles. <br> Recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]. | Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. <br> Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]. <br> Compare and sort common 2-D shapes and everyday objects. <br> Recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]. <br> Compare and sort common 3-D shapes and everyday objects. | Count from 0 in multiples of $4,8,50$ and 100 . <br> Find 10 or 100 more or less than a given number. <br> Recall and use multiplication and division facts for the 3,4 and 8 multiplication tables. <br> 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. | Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. <br> Find the area of rectilinear shapes by counting squares. | Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. <br> Know and use the vocabulary of prime numbers, prime factors, and composite (nonprime) numbers. <br> Establish whether a number up to 100 is prime and recall prime numbers up to 19 . <br> Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3). <br> Multiply numbers up to 4 digits by a one- or twodigit number using a formal written method, including long multiplication for twodigit numbers. <br> Multiply and divide numbers mentally drawing upon known facts. <br> 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. | Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. <br> Compare and order fractions, including fractions $>1$. <br> Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. <br> Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $1 / 4 \times 1 / 2=$ $1 / 8]$. <br> Divide proper fractions by whole numbers [for example $1 / 3 \div 2=1 / 6$ ]. |




| Block 5 <br> $\mathbf{1 , 2 , 3 , 4 , 5}$ |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Find, subitise and <br> represent 4 and 5. <br> Find 1 more and 1 <br> less. <br> Composition of 4 and <br> 5 |  |  |  |  |
| Composition of 1,2 <br> 3,4 and 5. |  |  |  |  |
| Block 6 <br> Shapes with 4 <br> sides |  |  |  |  |
| Identify, name and <br> combine shapes with <br> 4 sides. <br> Shapes in the <br> environment. <br> Day and Night. |  |  |  |  |


|  | EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Block 1 <br> Alive in 5! | $\begin{gathered} \text { Block } 1 \\ \text { Place Value (within 20) } \end{gathered}$ | Block 1 <br> Money | Block 1 <br> Multiplication and Division | Block 1 <br> Multiplication and Division | Block 1 <br> Multiplication and Division | Block 1 <br> Ratio |
|  | Introducing zero. <br> Finding, subitising and representing 0 to 5. <br> Finding 1 more and 1 less. <br> Conceptual subitising to 5. | Count numbers to 20 in numerals. <br> Identify and represent numbers using objects and pictorial representations. <br> Read and write numbers from 1 to 20 in numerals and words. <br> Given a number, identify one more and one less. | Recognise and use symbols for pounds ( $£$ ) and pence (p); combine amounts to make a particular value. <br> Find different combinations of coins that equal the same amounts of money. <br> Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. | Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. <br> Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers of times one-digit numbers, using mental and progressing to formal written methods. <br> 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. | Recall multiplication and division facts for multiplication tables up to $12 \times 12$. <br> 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. <br> Recognise and use factor pairs and commutativity in mental calculations. <br> Multiply two-digit and three-digit numbers by a one-digit number using formal written layout. <br> 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 mobjects. | Multiply numbers up to 4 digits by a one- or twodigit number using a formal written method, including long multiplication for twodigit numbers. <br> Multiply and divide numbers mentally drawing upon known facts. <br> 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. <br> Multiply and divide whole numbers and those involving decimals by 10 , 100 and 1000. <br> Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares, and cubes. <br> Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. | Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. <br> Solve problems involving the calculation/use of percentages for comparison. <br> Solve problems involving similar shapes where the scale factor is known or can be found. <br> Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. |


|  |  |  |  |  |  | Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign. |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Block 2 <br> Mass and Capacity | Block 2 <br> Addition and Subtraction (Within 20) | Block 2 <br> Multiplication and Division | Block 2 <br> Length and Perimeter | Block 2 <br> Length and Perimeter | Block 2 <br> Fractions | Block 2 <br> Algebra |
|  | Compare mass. <br> Find balance. <br> Explore and compare capacity. | Add and subtract one-digit and two-digit numbers to 20, including zero. <br> Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7=$ ? -9 . | Recall and use multiplication and division facts for the 2,5 and 10 multiplication tables, including recognising odd and even numbers. <br> Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. <br> Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication ( $\times$ ), division $(\div)$ and equals ( $=$ ) signs. <br> Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. | Measure, compare, add, and subtract lengths ( $\mathrm{m} / \mathrm{cm} / \mathrm{mm}$ ). <br> Measure the perimeter of simple 2-D shapes. | Convert between different units of measure - for example, kilometre to metre. <br> Estimate, compare and calculate different measures. <br> Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. <br> Find the area of rectilinear shapes by counting squares. | Add and subtract fractions with the same denominator and denominators that are multiples of the same number. <br> Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. | Use simple formulae. <br> Generate and describe linear number sequences. <br> Express missing number problems algebraically. <br> Find pairs of numbers that satisfy an equation with two unknowns. <br> Enumerate possibilities of combinations of two variables. |


|  | Block 3 <br> Growing 6, 7 and 8 | Block 3 <br> Place Value (within 50) | Block 3 Length and Height | Block 3 <br> Fractions | Block 3 <br> Fractions | Block 3 Decimals and percentages | Block 3 Decimals |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Finding and representing 6, 7 and 8. <br> Finding 1 more and 1 less. <br> Composition of 6, 7 and 8. <br> Making pairs - odd and even. <br> Finding and making doubles to 8 . <br> Combing two groups. <br> Conceptual subitising. | Count to and across 50, forwards and backwards, beginning with 0 or 1 , or from any given number. <br> Count numbers to 50 in numerals; count in multiples of twos, fives and tens identify and represent numbers using objects and pictorial representations. <br> Read and write numbers to 50 in numerals. <br> Read and write numbers from 1 to 20 in numerals and words. <br> Given a number, identify one more and one less. | Choose and use appropriate standard units to estimate and measure length/height in any direction ( $\mathrm{m} / \mathrm{cm}$ ); to the nearest appropriate unit, using rulers. <br> Compare and order lengths and record the results using >, < and $=$. | Count up and down in tenths. <br> Recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10. <br> Recognise, find, and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. <br> Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. <br> Recognise and show, using diagrams, equivalent fractions with small denominators. <br> Compare and order unit fractions, and fractions with the same denominators. <br> Solve problems that involve all of the above. | Recognise and show, using diagrams, families of common equivalent fractions. <br> Add and subtract fractions with the same denominator. <br> 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. <br> Solve simple measure and money problems involving fractions and decimals to two decimal places. | Read and write decimal numbers as fractions [for example, $0.71=71 / 100$ <br> Recognise and use thousandths and relate them to tenths, hundredths, and decimal equivalents. <br> Round decimals with two decimal places to the nearest whole number and to one decimal place. <br> Read, write, order, and compare numbers with up to three decimal places. 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. <br> Solve problems which require knowing percentage and decimal equivalents of $1 / 2,1 / 4,1 / 5$, $2 / 5$, and $4 / 5$ and those fractions with a denominator of a multiple of 10 or 25 . | Identify the value of each digit in numbers given to three decimal places. <br> Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375 ] for a simple fraction. <br> Recall and use equivalences between simple fractions, decimals, and percentages, including in different contexts. |


|  | Block 4 Length, height and time | Block 4 Length and Height | Block 4 <br> Mass, Capacity and Temperature | Block 4 <br> Mass and Capacity | Block 4 Decimals | Block 4 <br> Percentage and area | Block 4 <br> Fractions, decimals, and percentages |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Exploring and comparing length. <br> Exploring and comparing height. <br> Ordering and sequencing time. | Compare, describe, and solve practical problems for lengths and heights. <br> Measure and begin to record lengths and heights. | Choose and use appropriate standard units to estimate and measure mass (kg/g); temperature ( ${ }^{\circ} \mathrm{C}$ ); capacity (litres/ml) to the nearest appropriate unit, using scales, thermometers and measuring vessels. <br> Compare and order mass, volume/capacity and record the results using >, < and $=$. | Measure, compare, add, and subtract mass (kg/g) and volume/capacity ( $1 / \mathrm{ml}$ ). | Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. <br> Recognise and write decimal equivalents of any number of tenths or hundredths. <br> Recognise and write decimal equivalents to $1 / 4$, $1 / 2$ and $3 / 4$. <br> Round decimals with one decimal place to the nearest whole number. <br> Compare numbers with the same number of decimal places up to two decimal places. <br> Solve simple measure and money problems involving fractions and decimals to two decimal places. | Convert between different units of metric measure. <br> Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds, and pints. <br> Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling. <br> Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. <br> Calculate and compare the area of rectangles (including squares) and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes. <br> Estimate volume [for example, using blocks to build cuboids] and capacity [for example, using water]. | Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction. <br> Recall and use equivalences between simple fractions, decimals, and percentages, including in different contexts. |


|  | Block 5 <br> Building 9 and 10 | Block 5 Mass and Volume |  |  |  | Block 5 <br> Statistics | Block 5 <br> Area, perimeter, and volume |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Finding, comparing and representing 9 and 10. <br> Conceptual subitising to 10 . <br> Finding 1 more and 1 less. <br> Composition to 10. <br> Number bonds to 10 <br> Finding and making doubles to 10 . <br> Exploring odd and even. | Compare, describe, and solve practical problems for mass/weight and capacity and volume. <br> Measure and begin to record mass/weight, capacity, and volume. |  |  |  | Complete, read and interpret information in tables, including timetables. <br> Solve comparison, sum, and difference problems using information presented in a line graph. | Recognise that shapes with the same areas can have different perimeters and vice versa. <br> Recognise when it is possible to use formulae for area and volume of shapes. <br> Calculate the area of parallelograms and triangles. <br> 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. |
|  | Block 6 Explore 3-D shape |  |  |  |  |  | Block 6 <br> Statistics |
|  | Recognise and name 3D shapes. <br> Find 2D shapes within 3D shapes. <br> Use 3D shapes for tasks. <br> Find 3D shapes in the environment. <br> Identify, copy and continue patterns. <br> Patterns in the environment. |  |  |  |  |  | Interpret and construct pie charts and line graphs and use these to solve problems. <br> Calculate and interpret the mean as an average. |



|  | Block 2 <br> How many now? | Block 2 <br> Fractions | Block 2 Time | Block 2 <br> Money | Block 2 <br> Money | Block 2 <br> Position and Direction | Block 2 <br> Position and Direction |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Adding more - How many did I add? <br> Taking away - How many did I take away? | Recognise, find, and name a half as one of two equal parts of an object, shape, or quantity. <br> Recognise, find, and name a quarter as one of four equal parts of an object, shape, or quantity. | Compare and sequence intervals of time. <br> 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. <br> Know the number of minutes in an hour and the number of hours in a day. | Add and subtract amounts of money to give change, using both $£$ and $p$ in practical contexts | Estimate, compare and calculate different measures, including money in pounds and pence. | 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. | Describe positions on the full coordinate grid (all four quadrants). <br> Draw and translate simple shapes on the coordinate plane and reflect them in the axes. |






