

# Maths

## Progression Map



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| <b>Intent</b>         | <p>When teaching mathematics at Inglehurst, we intend to provide a curriculum which caters for the needs of all individuals and sets them up with the necessary skills and knowledge for them to become successful in their future adventures.</p> <p>The 2014 National Curriculum for Maths aims to ensure that all children:</p> <ul style="list-style-type: none"> <li>• Become fluent in the fundamentals of Mathematics</li> <li>• Are able to reason mathematically</li> <li>• Can solve problems by applying their Mathematics</li> </ul> <p>At Inglehurst Infants, these skills are embedded within Maths lessons and developed consistently over time. We are committed to ensuring that children are able to recognise the importance of Maths in the wider world and that they are able to use their mathematical skills and knowledge confidently in their lives in a range of different contexts. We incorporate sustained levels of challenge through varied and high quality activities with a focus on fluency, reasoning and problem solving.</p> <p>A wide range of mathematical resources are used and children are taught to show their workings in a concrete, pictorial and abstract form wherever suitable. They are taught to explain their choice of methods and develop their mathematical reasoning skills. Our aim is for all children to enjoy Mathematics and to experience success in the subject, with the ability to reason mathematically. We are committed to developing children's curiosity about the subject, as well as an appreciation of the beauty and power of Mathematics.</p>                                                                                 |
| <b>Implementation</b> | <p>The content and principles underpinning the 2014 Mathematics curriculum and the Maths curriculum at Inglehurst Infants reflect those found in high-performing education systems internationally. These principles and features characterise this approach and convey how our curriculum is implemented:</p> <ul style="list-style-type: none"> <li>• Teachers reinforce an expectation that all children are capable of achieving high standards in Mathematics.</li> <li>• The large majority of children progress through the curriculum content at the same pace; significant time is spent developing deep knowledge of the key ideas that are needed to underpin future learning. This ensures that all can master concepts before moving to the next part of the curriculum sequence, allowing no children to be left behind.</li> <li>• If a children fail to grasp a concept or procedure, this is identified quickly and early intervention ensures the children is ready to move forward with the whole class in the next lesson.</li> <li>• The structure and connections within mathematics are emphasised, so that children develop deep learning that can be sustained.</li> <li>• Lesson design identifies the new mathematics that is to be taught, the key points, the difficult points and a carefully sequenced journey through the learning. In a typical lesson the teacher leads back and forth interaction, including questioning, short tasks, explanation, demonstration, and discussion.</li> <li>• Practise and consolidation play a central role. Carefully designed variation within this builds fluency and understanding of underlying mathematical concepts.</li> </ul> |

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|               | <ul style="list-style-type: none"> <li>• Teachers use precise questioning in class to test conceptual and procedural knowledge and assess children regularly to identify those requiring intervention, so that all children keep up.</li> <li>• Children's explanations and their proficiency in articulating mathematical reasoning, with the precise use of mathematical vocabulary, are supported through the use of stem sentences and generalisations provided by the teacher. These help the children to make connections and expose the structure of the maths.</li> <li>• Key facts (such as multiplication tables and addition facts within 10) are learned automatically to avoid cognitive overload in the working memory and enable children to focus on new concepts.</li> </ul> <p>To ensure whole consistency and progression, the school uses the nationally recognised NCTEM scheme. The NCTEM curriculum is a cumulative curriculum, so that once a topic is covered, it is met many times again in other contexts. For example, place value is revisited in addition and subtraction and multiplication and division. The curriculum recognises the importance of children's conceptual understanding of number. It is therefore designed to ensure that time is invested in reinforcing this to build competency.</p> <p><a href="https://www.ncetm.org.uk/media/uhjhtxy1/the-essence-of-maths-teaching-for-mastery-june-2016.pdf">https://www.ncetm.org.uk/media/uhjhtxy1/the-essence-of-maths-teaching-for-mastery-june-2016.pdf</a></p> <p>Lessons are planned to provide plenty of opportunities to build reasoning and problem solving elements into the curriculum. When introduced to a new concept, children have the opportunity to use concrete objects and manipulatives to help them understand what they are doing. Alongside this, children are encouraged to use pictorial representations. These representations can then be used to help reason and solve problems. Both concrete and pictorial representations support children's understanding of abstract methods.</p> <p>Mathematical topics are taught in blocks, to enable the achievement of 'mastery' over time.</p> <p>These teaching blocks are broken down into smaller steps, to help children understand concepts better. This approach means that children do not cover too many concepts at once. Each lesson provides the means for children to achieve greater depth, with children who are quick to grasp new content being offered rich and sophisticated problems, within the lesson as appropriate.</p> <p>We continuously strive to improve our own knowledge and skills and frequently share good practice, plan collaboratively and take part in professional dialogues. We work closely with the local Maths Hub, take part in training opportunities and networking meetings.</p> |
| <b>Impact</b> | <p>Inglehurst has a well-established supportive ethos and our approaches support the children in developing their collaborative and independent skills, as well as empathy and the need to recognise the achievement of others. Through discussion and feedback, children talk enthusiastically about their maths lessons and speak about how they love learning about maths. They can articulate the context in which maths is being taught and relate this to real life purposes. Pupils use acquired vocabulary in maths lessons. They have the skills to use methods independently and show resilience when tackling problems. The flexibility and fluidity to move between different contexts and representations of maths. At the end of each year we expect the majority of children to have achieved Age Related Expectations (ARE) for their year group. Some children will have progressed further and achieved greater depth (GD). Ongoing assessment ensures that children who have gaps in their knowledge receive appropriate support and intervention.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| EYFS                                             |                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                    |
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|                                                  | Nursery                                                                                                                                                                                                                                                                                                                                                                                                | Reception                                                                                                                                                                                                                                                                                                                                                                                | ELG                                                                                                                                                                                                |
| Mathematical vocabulary                          |                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                    |
| Mathematical vocabulary                          | <ul style="list-style-type: none"> <li>• Use a wider range of vocabulary</li> <li>• Understand why questions such as “why do you think...?”</li> <li>• Understand a question or instruction that has two parts, such as: “Get your coat and wait at the door”.</li> </ul>                                                                                                                              | <ul style="list-style-type: none"> <li>• Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.</li> <li>• Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.</li> <li>• Use new vocabulary in different contexts</li> </ul> |                                                                                                                                                                                                    |
| Number and place value                           |                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                    |
| Counting                                         | <ul style="list-style-type: none"> <li>• Recite numbers past 5.</li> <li>• Say one number for each item in order: 1,2,3,4,5.</li> <li>• Know that the last number reached when counting a small set of objects tells you how many there are in total (‘cardinal principle’).</li> </ul>                                                                                                                | <ul style="list-style-type: none"> <li>• Count objects, actions and sounds.</li> <li>• Count beyond ten.</li> </ul>                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>• Verbally count beyond 20, recognising the pattern of the counting system.</li> </ul>                                                                      |
| Identifying, representing and estimating numbers | <ul style="list-style-type: none"> <li>• Develop fast recognition of up to 3 objects, without having to count them individually (‘subitising’).</li> <li>• Show “finger numbers’ up to 5.</li> <li>• Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5.</li> <li>• Experiment with their own symbols and marks as well as numerals.</li> </ul> | <ul style="list-style-type: none"> <li>• Subitise.</li> <li>• Link the number symbol (numeral) with its cardinal number value.</li> </ul>                                                                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>• Subitise (recognise quantities without counting) up to 5.</li> </ul>                                                                                      |
| Reading and writing numbers                      | <ul style="list-style-type: none"> <li>• Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5.</li> <li>• Experiment with their own symbols and marks as well as numerals.</li> </ul>                                                                                                                                                             | <ul style="list-style-type: none"> <li>• Link the number symbol (numeral) with its cardinal number value.</li> </ul>                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                    |
| Compare and order numbers                        | <ul style="list-style-type: none"> <li>• Compare quantities using language: ‘more than’, ‘fewer than’.</li> <li>• Begin to describe a sequence of events, real or fictional, using words such as ‘first’, ‘then...’</li> </ul>                                                                                                                                                                         | <ul style="list-style-type: none"> <li>• Compare numbers.</li> <li>• Understand the ‘one more than/one less than’ relationship between consecutive numbers.</li> </ul>                                                                                                                                                                                                                   | <ul style="list-style-type: none"> <li>• Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.</li> </ul> |
| Understanding place values                       |                                                                                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>• Understand the ‘one more than/one less than’ relationship between consecutive numbers.</li> </ul>                                                                                                                                                                                                                                               |                                                                                                                                                                                                    |

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|                                                     |                                                                                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>Explore the composition of numbers to 10.</li> </ul>                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                        |
| Solve problems                                      |                                                                                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>Solve real world mathematical problems with numbers up to 5.</li> <li>Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Addition and subtraction</b>                     |                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                        |
| Mental calculations                                 | <ul style="list-style-type: none"> <li>Develop fast recognition of up to 3 objects, without having to count them individually ('subitising').</li> <li>Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle').</li> <li>Show 'finger numbers' up to 5.</li> </ul> | <ul style="list-style-type: none"> <li>Subitise.</li> <li>Explore the composition of numbers to 10.</li> <li>Automatically recall number bonds for numbers 0-10.</li> </ul>                                               | <ul style="list-style-type: none"> <li>Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.</li> <li>Have a deep understanding of numbers to 10, including the composition of each number.</li> <li>Subitise (recognise quantities without counting) up to 5.</li> </ul> |
| Number bonds                                        | <ul style="list-style-type: none"> <li>Develop fast recognition of up to 3 objects, without having to count them individually ('subitising').</li> <li>Show 'finger numbers' up to 5.</li> </ul>                                                                                                                                               | <ul style="list-style-type: none"> <li>Subitise.</li> <li>Explore the composition of numbers to 10.</li> <li>Automatically recall number bonds for numbers 0-10.</li> </ul>                                               | <ul style="list-style-type: none"> <li>Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.</li> <li>Have a deep understanding of numbers to 10, including the composition of each number.</li> <li>Subitise (recognise quantities without counting) up to 5.</li> </ul> |
| Inverse operations, estimating and checking answers | <ul style="list-style-type: none"> <li>Develop fast recognition of up to 3 objects, without having to count them individually ('subitising').</li> </ul>                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>Explore the composition of numbers to 10.</li> </ul>                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                        |
| Solve problems                                      | <ul style="list-style-type: none"> <li>Solve real world mathematical problems with numbers up to 5.</li> <li>Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'</li> </ul>                                                                                                                      |                                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed evenly.</li> </ul>                                                                                                                                                                                                         |
| <b>Multiplication and division</b>                  |                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                        |

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| Mental calculations                             |                                                                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>Explore the composition of numbers to 10.</li> </ul>                                                                             | <ul style="list-style-type: none"> <li>Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed evenly.</li> </ul>                                                                                                                                                                                             |
| Multiplication and division facts               |                                                                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>Explore the composition of numbers to 10.</li> </ul>                                                                             | <ul style="list-style-type: none"> <li>Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed evenly.</li> <li>Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.</li> </ul> |
| Properties of numbers                           |                                                                                                                                                                                                                                                |                                                                                                                                                                         | <ul style="list-style-type: none"> <li>Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed evenly.</li> </ul>                                                                                                                                                                                             |
| Solve problems                                  |                                                                                                                                                                                                                                                |                                                                                                                                                                         | <ul style="list-style-type: none"> <li>Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed evenly.</li> </ul>                                                                                                                                                                                             |
| Measurement                                     |                                                                                                                                                                                                                                                |                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                            |
| Describe, measure, compare and solve            | <ul style="list-style-type: none"> <li>Make comparisons between objects relating to size, length, weight and capacity.</li> </ul>                                                                                                              | <ul style="list-style-type: none"> <li>Compare length, weight and capacity.</li> </ul>                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                            |
| Telling the time                                | <ul style="list-style-type: none"> <li>Begin to describe a sequence of events, real or fictional, using words, such as 'first', 'then...'</li> </ul>                                                                                           |                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                            |
| Properties of shapes                            |                                                                                                                                                                                                                                                |                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                            |
| Recognise 2D and 3D shapes and their properties | <ul style="list-style-type: none"> <li>Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'.</li> </ul> | <ul style="list-style-type: none"> <li>Select, rotate and manipulate shapes in order to develop spatial reasoning skills</li> </ul>                                     |                                                                                                                                                                                                                                                                                                                                                                                            |
| Compare and classify shapes                     | <ul style="list-style-type: none"> <li>Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'.</li> </ul> | <ul style="list-style-type: none"> <li>Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                            |

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| Drawing 2D shapes and construction 3D shapes | <ul style="list-style-type: none"> <li>Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc.</li> <li>Combine shapes to make new ones - an arch, a bigger triangle etc.</li> </ul>                                                                                                                                          | <ul style="list-style-type: none"> <li>Select, rotate and manipulate shapes in order to develop spatial reasoning skills.</li> <li>Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.</li> </ul> |  |
| <b>Position and direction</b>                |                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                     |  |
| Position, direction and movement             | <ul style="list-style-type: none"> <li>Understand position through words alone – for example, “The bag is under the table,” – with no pointing.</li> <li>Describe a familiar route.</li> <li>Discuss routes and locations, using words like ‘in front of’ and ‘behind’.</li> </ul>                                                                                | <ul style="list-style-type: none"> <li>Draw information from a simple map.</li> </ul>                                                                                                                                                                               |  |
| Patterns                                     | <ul style="list-style-type: none"> <li>Talk about and identify the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like ‘pointy’, ‘spotty’, ‘blobs’ etc.</li> <li>Extend and create ABAB patterns – stick, leaf, stick, leaf.</li> <li>Notice and correct an error in a repeating pattern.</li> </ul> | <ul style="list-style-type: none"> <li>Continue, copy and create repeating patterns.</li> </ul>                                                                                                                                                                     |  |

| <b>KS1</b>                            |                                                                                                                                                                                                                                                                                                                  |                                                                                                                                          |                                                                                                                                                           |
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| <b>Number: Number and place value</b> |                                                                                                                                                                                                                                                                                                                  |                                                                                                                                          |                                                                                                                                                           |
|                                       | Year 1                                                                                                                                                                                                                                                                                                           | Year 2                                                                                                                                   | Year 3                                                                                                                                                    |
| Counting                              | <ul style="list-style-type: none"> <li>count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens</li> <li>given a number, identify one more and one less</li> </ul> | <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> </ul> | <ul style="list-style-type: none"> <li>count from 0 in multiples of 4, 8, 50 and 100;</li> <li>find 10 or 100 more or less than a given number</li> </ul> |
| Comparing number                      | <ul style="list-style-type: none"> <li>use the language of: equal to, more than,</li> </ul>                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>compare and order numbers from 0 up to</li> </ul>                                                 | <ul style="list-style-type: none"> <li>compare and order numbers up to 1000</li> </ul>                                                                    |

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|                                                        | less than (fewer), most, least                                                                                                                                                                                                                                                                          | 100; use and = signs                                                                                                                                  |                                                                                                                                                                                                                                                     |
| Identifying, representing and estimating numbers       | <ul style="list-style-type: none"> <li>identify and represent numbers using objects and pictorial representations including the number line</li> </ul>                                                                                                                                                  | <ul style="list-style-type: none"> <li>identify, represent and estimate numbers using different representations, including the number line</li> </ul> | <ul style="list-style-type: none"> <li>identify, represent and estimate numbers using different representations</li> </ul>                                                                                                                          |
| Reading and writing numbers (including Roman Numerals) | <ul style="list-style-type: none"> <li>read and write numbers from 1 to 20 in numerals and words.</li> </ul>                                                                                                                                                                                            | <ul style="list-style-type: none"> <li>read and write numbers to at least 100 in numerals and in words</li> </ul>                                     | <ul style="list-style-type: none"> <li>read and write numbers up to 1000 in numerals and in words</li> <li>tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24- hour clocks</li> </ul> |
| Understanding place value                              |                                                                                                                                                                                                                                                                                                         | <ul style="list-style-type: none"> <li>recognise the place value of each digit in a two-digit number (tens, ones)</li> </ul>                          | <ul style="list-style-type: none"> <li>recognise the place value of each digit in a three-digit number (hundreds, tens, ones)</li> </ul>                                                                                                            |
| <b>Vocabulary</b>                                      | Numbers to 20 and beyond, number, none, count (on/ up/to/from/ down), before, after, more, less, many, few, fewer, least, fewest, smallest, greater, lesser, equal to, the same as, odd, even, pair, ones, tens, digit, numeral, compare, order, different, size, value, between, halfway, above, below | (Including Year 1 vocabulary)<br>Numbers to 100, hundreds, partition, recombine, more/less                                                            | (Including KS1 vocabulary)<br>Numbers to 1000                                                                                                                                                                                                       |

| Number: Addition and Subtraction |                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                 |
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|                                  | Year 1                                                                                                                                                                                                                                                                             | Year 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Year 3                                                                                                                                                                                                          |
| Number Bonds                     | represent and use number bonds and related subtraction facts within 20                                                                                                                                                                                                             | recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                 |
| Mental Calculations              | <ul style="list-style-type: none"> <li>add and subtract one-digit and two-digit numbers to 20, including zero</li> <li>read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Written Methods)</li> </ul> | <ul style="list-style-type: none"> <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> <li>a two-digit number and tens</li> <li>two two-digit numbers</li> <li>adding three one-digit numbers</li> </ul> </li> <li>show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot</li> </ul> | add and subtract numbers mentally, including: <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> |

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| Written Methods                                     | read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Mental Calculation)                                                                                                                      |                                                                                                                                                                                                                                                                                             | add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction           |
| Inverse operations, estimating and checking answers |                                                                                                                                                                                                                                                                          | recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.                                                                                                                                           | estimate the answer to a calculation and use inverse operations to check answers                                              |
| Problem solving                                     | solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as<br>$7 = \square - 9$                                                                                            | 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> | solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction |
| Vocabulary                                          | (Within 20)<br>Addition, subtraction, take away, equals, sum, symbol, number bonds, number line, add, more, fewer, plus, make, sum, total, altogether, inverse double, near double, half, halves, equals, is the same as, difference between, subtract, take away, minus | (Within 100 – including Year 1 vocabulary)                                                                                                                                                                                                                                                  | (Including KS1 vocabulary)<br>Columns                                                                                         |

| Number: Multiplication and Division |                                                                                 |                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                         |
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|                                     | Year 1                                                                          | Year 2                                                                                                                                                                                                                                                                                                                        | Year 3                                                                                                                                                                                                                                  |
| Multiplication and division facts   | count in multiples of twos, fives and tens (copied from Number and Place Value) | <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 (copied from Number and Place Value)</li> <li>recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</li> </ul> | <ul style="list-style-type: none"> <li>count from 0 in multiples of 4, 8, 50 and 100 (copied from Number and Place Value)</li> <li>recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables</li> </ul> |
| Mental calculations                 |                                                                                 | show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot                                                                                                                                                                                                   | 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                    |



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|                                                     |                                                                                                                                                                                       |                                                                                                                                                                                                   | formal written methods (appears also in Written Methods)                                                                                                                                                                                                                     |
| Written calculations                                |                                                                                                                                                                                       | calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication ( $\times$ ), division ( $\div$ ) and equals (=) signs | 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 (appears also in Mental Methods) |
| Inverse operations, estimating and checking answers |                                                                                                                                                                                       |                                                                                                                                                                                                   | estimate the answer to a calculation and use inverse operations to check answers (copied from Addition and Subtraction)                                                                                                                                                      |
| Problem solving                                     | 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 | solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts           | 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                                                              |
| <b>Vocabulary</b>                                   | Odd, even, lots of, groups of, once, twice, multiple of, times, multiply, repeated addition, array, row, column, double, halves, share, equally, equal, left, left over               | (Including Year 1 vocabulary)                                                                                                                                                                     | (Including KS1 vocabulary)<br>Product, scale up                                                                                                                                                                                                                              |

| Number: Fractions (including decimals and percentages) |                                                                                                                                                                                                                                                      |                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                        | Year 1                                                                                                                                                                                                                                               | Year 2                                                                                                                                                                    | Year 3                                                                                                                                                                                                                                                                                                                                                                               |
| Counting in fractional steps                           |                                                                                                                                                                                                                                                      | Pupils should count in fractions up to 10, starting from any number and using the $\frac{1}{2}$ and $\frac{2}{4}$ equivalence on the number line (Non Statutory Guidance) | count up and down in tenths                                                                                                                                                                                                                                                                                                                                                          |
| Recognising fractions                                  | <ul style="list-style-type: none"> <li>•recognise, find and name a half as one of two equal parts of an object, shape or quantity</li> <li>•recognise, find and name a quarter as one of four equal parts of an object, shape or quantity</li> </ul> | 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                  | <ul style="list-style-type: none"> <li>•recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators</li> <li>•recognise that tenths arise from dividing an object into 10 equal parts and in dividing one – digit numbers or quantities by 10.</li> <li>•recognise and use fractions as numbers: unit</li> </ul> |

|                                                             |                                                     |                                                                                                    |                                                                                                                           |
|-------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
|                                                             |                                                     |                                                                                                    | fractions and non-unit fractions with small denominators                                                                  |
| Comparing fractions                                         |                                                     |                                                                                                    | compare and order unit fractions, and fractions with the same denominators                                                |
| Equivalence (including fractions, decimals and percentages) |                                                     | write simple fractions e.g. $1/2$ of $6 = 3$ and recognise the equivalence of $2/4$ and $1/2$ .    | recognise and show, using diagrams, equivalent fractions with small denominators                                          |
| Addition and subtraction of fractions                       |                                                     |                                                                                                    | add and subtract fractions with the same denominator within one whole (e.g. $5/7 + 1/7 = 6/7$ )                           |
| Problem solving                                             |                                                     |                                                                                                    | solve problems that involve all of the above                                                                              |
| <b>Vocabulary</b>                                           | Whole, equal parts, half, halves, quarter, fraction | (Including Year 1 vocabulary)<br>Quarters, thirds, equivalence, equivalent, numerator, denominator | (Including KS1 vocabulary)<br>unit fraction, non-unit fraction, compare, order, tenths, equivalent decimals and fractions |

| Measurement               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           | Year 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Year 2                                                                                                                                                                                                                                                                                                                              | Year 3                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Comparing and estimating  | <ul style="list-style-type: none"> <li>compare, describe and solve practical problems for:               <ul style="list-style-type: none"> <li>lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half]</li> <li>mass/weight [e.g. heavy/light, heavier than, lighter than]</li> <li>capacity and volume [e.g. full/empty, more than, less than, half, half full, quarter]</li> <li>time [e.g. quicker, slower, earlier, later]</li> </ul> </li> <li>sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]</li> </ul> | <ul style="list-style-type: none"> <li>compare and order lengths, mass, volume/capacity and record the results using <math>&gt;</math>, <math>&lt;</math> and <math>=</math></li> <li>compare and sequence intervals of time</li> </ul>                                                                                             | <ul style="list-style-type: none"> <li>compare durations of events, for example to calculate the time taken by particular events or tasks</li> <li>estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (appears also in Telling the Time)</li> </ul> |
| Measuring and calculating | <ul style="list-style-type: none"> <li>measure and begin to record the following:               <ul style="list-style-type: none"> <li>lengths and heights</li> <li>mass/weight</li> <li>capacity and volume</li> <li>time (hours, minutes, seconds)</li> </ul> </li> <li>recognise and know the value of different</li> </ul>                                                                                                                                                                                                                                                                                                                | <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 (<math>^{\circ}\text{C}</math>); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels</li> </ul> | <ul style="list-style-type: none"> <li>measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)</li> <li>measure the perimeter of simple 2-D shapes</li> <li>add and subtract amounts of money to give change, using both £ and p in practical</li> </ul>                                                                                                                              |

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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|                   | denominations of coins and notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <ul style="list-style-type: none"> <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> </ul> | contexts                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Telling the time  | <ul style="list-style-type: none"> <li>•tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.</li> <li>•recognise and use language relating to dates, including days of the week, weeks, months and years</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <ul style="list-style-type: none"> <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.</li> <li>•know the number of minutes in an hour and the number of hours in a day. (appears also in Converting)</li> </ul>                                                                                  | <ul style="list-style-type: none"> <li>•tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks</li> <li>•estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (appears also in Comparing and Estimating)</li> </ul> |
| Converting        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | know the number of minutes in an hour and the number of hours in a day. (appears also in Telling the Time)                                                                                                                                                                                                                                                                             | know the number of seconds in a minute and the number of days in each month, year and leap year                                                                                                                                                                                                                                                                                                                                                              |
| <b>Vocabulary</b> | Full, half full, empty, weight, weighs, balances, heavy, heavier, heaviest, light, lighter, lightest, scales, time, days of the week, seasons, day, week, month, year, weekend, birthday, morning, afternoon, evening, night, mid night, bedtime, dinner time, playtime, today, yesterday, tomorrow, before, after, next, last, now, soon, early, late, quick, quicker, quickest, quickly, fast, faster, fastest, slow, slower, slowest, slowly, old, older, oldest, new, newer, newest, longer, hour, o'clock, half past, clock, watch, hands, once, twice, first, second, third, estimate, close to, same as, just over, just under, too many, too few, not enough, enough, length, width, height, depth, long, longer, longest, short, shorter, shortest, tall, taller, tallest, high, | (Including Year 1 vocabulary)<br><br>Analogue, digital, quarter past, quarter to, metres, kilometre, gram, kilograms, millilitres, litres, temperature, degrees                                                                                                                                                                                                                        | (Including KS1 vocabulary)<br><br>Leap year, twelve hour/twenty-four hour clock, Roman numerals I to XIII                                                                                                                                                                                                                                                                                                                                                    |

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|  | higher, highest Low, wide, narrow, deep, shallow, thick, thin, far, near, close, metre, ruler, money, coin, penny, pence, pound, price, cost, buy, sell, spend, spent, pay, change, costs more, costs less, cheaper, costs the same as |  |  |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|

| Geometry: Properties of Shapes          |                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                         | Year 1                                                                                                                                                                                                                                                               | Year 2                                                                                                                                                                                                                                                                                                                                                                                                              | Year 3                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Identifying shapes and their properties | recognise and name common 2-D and 3-D shapes, including: <ul style="list-style-type: none"> <li>○ 2-D shapes [e.g. rectangles (including squares), circles and triangles]</li> <li>○ * 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres].</li> </ul> | <ul style="list-style-type: none"> <li>● identify and describe the properties of 2-D shapes, including the number of sides and line 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 surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Drawing and constructing                |                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                     | draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them                                                                                                                                                                                                                                                                                                              |
| Comparing and classifying               |                                                                                                                                                                                                                                                                      | compare and sort common 2-D and 3-D shapes and everyday objects                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Angles                                  |                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>● recognise angles as a property of shape or a description of a turn</li> <li>● 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</li> <li>● identify horizontal and vertical lines and pairs of perpendicular and parallel lines</li> </ul> |
| Vocabulary                              | Group, sort, triangle, circle, square, rectangle, oblong, star, irregular, regular, cube, cuboid, pyramid, sphere, cone, cylinder, circle, triangle, square, shape, flat, curved, straight, round, hollow, solid, corners, faces, side, edge                         | (Including Year 1 vocabulary)<br><br>Size, bigger, larger, smaller, symmetrical, line of symmetry, fold, match, mirror line, reflection, pattern, repeating pattern, vertices                                                                                                                                                                                                                                       | (Including KS1 vocabulary)<br><br>Horizontal, vertical, perpendicular and parallel lines                                                                                                                                                                                                                                                                                                                                                     |

### Geometry: Positions and Direction

|                                   | Year 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Year 2                                                                                                                                                                                                                                                             | Year 3                                                                                                                   |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Positions, direction and movement | describe position, direction and movement, including half, quarter and three-quarter turns.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 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) |                                                                                                                          |
| Pattern                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | order and arrange combinations of mathematical objects in patterns and sequences                                                                                                                                                                                   |                                                                                                                          |
| Vocabulary                        | Left, right, top, middle, bottom, on top of, in front of, above, between, around, near, close, far, up, down, forwards, backwards, inside, outside, position, over, under, underneath, above, below, top, bottom, side on, in, outside, inside around, in front, behind, front, back, before, after, beside, next to, opposite, apart, between, middle, edge, centre, corner, direction, journey, left, right, up, down, forwards, backwards, sideways, across, close, far, near, along, through, to, from, towards, away from, movement, slide, roll, turn, whole turn, half turn | (Including Year 1)<br><br>Rotation, clockwise, anticlockwise, straight line, ninety degree turn, right angle                                                                                                                                                       | (Including KS1 vocabulary)<br><br>Greater/less than ninety degrees Orientation (same orientation, different orientation) |

### Statistics

|                                                | Year 1 | Year 2                                                                                                                                                                                                                                                                                                                           | Year 3                                                             |
|------------------------------------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| Interpreting, constructing and presenting data |        | <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</li> </ul> | interpret and present data using bar charts, pictograms and tables |

|                   |  |                                                                                                                                                                   |                                                                                                                                                                |
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|                   |  | and comparing categorical data                                                                                                                                    |                                                                                                                                                                |
| Problem solving   |  |                                                                                                                                                                   | solve one-step and twostep questions [e.g. 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables. |
| <b>Vocabulary</b> |  | Count, tally, sort, vote, graph, block graph, pictogram, represent, group, set, list, table. label, title, most popular, most common, least popular, least common | (Including KS1 vocabulary)<br><br>Chart, bar chart, frequency table, Carroll diagram, Venn diagram, axis, axes, diagram                                        |

| <b>Algebra</b> |                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                          |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                | Year 1                                                                                                                                                                                                                                                                                                                                                                    | Year 2                                                                                                                                                                                                                                                                                                                                                                  | Year 3                                                                                                                                                                                                                                                                                                                                                                   |
| Equations      | <ul style="list-style-type: none"> <li>•solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as <math>7 = * - 9</math> (Addition and Subtraction)</li> <li>•represent and use number bonds and related subtraction facts within 20 (Addition and Subtraction)</li> </ul> | <ul style="list-style-type: none"> <li>•recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems. (Addition and Subtraction)</li> <li>•recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 (Addition and Subtraction)</li> </ul> | <ul style="list-style-type: none"> <li>•solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. (Addition and Subtraction)</li> <li>•solve problems, including missing number problems, involving multiplication and division, including integer scaling (Multiplication and Division)</li> </ul> |
| Sequences      | sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening (Measurement)                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>•compare and sequence intervals of time (copied from Measurement)</li> <li>•order and arrange combinations of mathematical objects in patterns (Geometry: position and direction)</li> </ul>                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                          |