

# Mastering Number

## Reception Overview

Term 1	Term 2	Term 3
<p>Pupils will build on previous experiences of number from their home and nursery environments, and further develop their subitising and counting skills. They will explore the composition of numbers within 5. They will begin to compare sets of objects and use the language of comparison.</p> <p><b>Pupils will:</b></p> <ul style="list-style-type: none"> <li>• identify when a set can be subitised and when counting is needed</li> <li>• subitise different arrangements, both unstructured and structured, including using the Hungarian number frame</li> <li>• make different arrangements of numbers within 5 and talk about what they can see, to develop their conceptual subitising skills</li> <li>• spot smaller numbers 'hiding' inside larger numbers</li> </ul>	<p>Pupils will continue to develop their subitising and counting skills and explore the composition of numbers within and beyond 5. They will begin to identify when two sets are equal or unequal and connect two equal groups to doubles. They will begin to connect quantities to numerals.</p> <p><b>Pupils will:</b></p> <ul style="list-style-type: none"> <li>• continue to develop their subitising skills for numbers within and beyond 5, and increasingly connect quantities to numerals</li> <li>• begin to identify missing parts for numbers within 5</li> <li>• explore the structure of the numbers 6 and 7 as '5 and a bit' and connect this to finger patterns and the Hungarian number frame</li> <li>• focus on equal and unequal groups when comparing numbers</li> </ul>	<p>Pupils will consolidate their counting skills, counting to larger numbers and developing a wider range of counting strategies. They will secure knowledge of number facts through varied practice.</p> <p><b>Pupils will:</b></p> <ul style="list-style-type: none"> <li>• continue to develop their counting skills, counting larger sets as well as counting actions and sounds</li> <li>• explore a range of representations of numbers, including the 10-frame, and see how doubles can be arranged in a 10-frame</li> <li>• compare quantities and numbers, including sets of objects which have different attributes</li> <li>• continue to develop a sense of magnitude, e.g. knowing that 8 is quite a lot more than 2, but 4 is only a little bit more than 2</li> </ul>

<ul style="list-style-type: none"> <li>• connect quantities and numbers to finger patterns and explore different ways of representing numbers on their fingers</li> <li>• hear and join in with the counting sequence, and connect this to the 'staircase' pattern of the counting numbers, seeing that each number is made of one more than the previous number</li> <li>• develop counting skills and knowledge, including: that the last number in the count tells us 'how many' (cardinality); to be accurate in counting, each thing must be counted once and once only and in any order; the need for 1:1 correspondence; understanding that anything can be counted, including actions and sounds</li> <li>• compare sets of objects by matching</li> <li>• begin to develop the language of 'whole' when talking about objects which have parts</li> </ul>	<ul style="list-style-type: none"> <li>• understand that two equal groups can be called a 'double' and connect this to finger patterns</li> <li>• sort odd and even numbers according to their 'shape'</li> <li>• continue to develop their understanding of the counting sequence and link cardinality and ordinality through the 'staircase' pattern</li> <li>• order numbers and play track games</li> <li>• join in with verbal counts beyond 20, hearing the repeated pattern within the counting numbers</li> </ul>	<ul style="list-style-type: none"> <li>• begin to generalise about 'one more than' and 'one less than' numbers within 10</li> <li>• continue to identify when sets can be subitised and when counting is necessary</li> <li>• develop conceptual subitising skills including when using a rekenrek</li> </ul>
--	---	---

# Mastering Number

## Year 1 Overview

Term 1	Term 2	Term 3
<p>Pupils will have an opportunity to consolidate the Early Learning Goals and continue to explore the composition of numbers within 10, and the position of these numbers in the linear number system.</p> <p><b>Pupils will:</b></p> <ul style="list-style-type: none"> <li>• subitise within 5, including when using a rekenrek, and re-cap the composition of 5</li> <li>• develop their understanding of the numbers 6 to 9 using the '5 and a bit' structure</li> <li>• compare numbers within 10 and use precise mathematical language when doing so</li> <li>• re-cap the order of numbers within 10 and connect this to '1 more' and '1 less' than a given number</li> </ul>	<p>Pupils will continue to explore the composition of numbers within 10 and explore addition and subtraction structures and the related language (without the use of symbols).</p> <p><b>Pupils will:</b></p> <ul style="list-style-type: none"> <li>• explore the composition of each of the numbers 7 and 9</li> <li>• explore the composition of odd and even numbers, seeing that even numbers can be made of two odd or two even parts, and that odd numbers can be composed of one odd part and one even part</li> <li>• identify the number that is two more or two less than a given odd or even number, identifying that two more/ less than an odd number is the next/ previous odd number, and two more/ less than an even number is the next/ previous even number</li> </ul>	<p>Pupils will explore the composition of numbers within 20 and their position in the linear number system. They will connect addition and subtraction expressions and equations to 'number stories'.</p> <p><b>Pupils will:</b></p> <ul style="list-style-type: none"> <li>• explore the composition of the numbers 11 to 19 as '10 and a bit' and compare numbers within 20</li> <li>• connect the composition of the numbers 11 to 19 to their position in the linear number system, including identifying the midpoints of 5, 10 and 15</li> <li>• compare numbers within 20</li> <li>• understand how addition and subtraction equations can represent previously explored structures of addition and subtraction (aggregation/ partitioning/ augmentation/ reduction)</li> </ul>

<ul style="list-style-type: none"> <li>• explore the structure of even numbers (including that even numbers can be composed by doubling any number, and can be composed of 2s)</li> <li>• explore the structure of the odd numbers as being composed of 2s and 1 more</li> <li>• explore the composition of each of the numbers 6, 8, and 10</li> <li>• explore number tracks and number lines and identify the differences between them</li> </ul>	<ul style="list-style-type: none"> <li>• explore the aggregation and partitioning structures of addition and subtraction through systematically partitioning and re-combining numbers within 10 and connecting this to the part-part-whole diagram, including using the language of parts and wholes</li> <li>• explore the augmentation and reduction structures of addition and reduction using number stories, including introducing the 'first, then, now' language structure</li> </ul>	<ul style="list-style-type: none"> <li>• practise retrieving previously taught facts and reason about these</li> </ul>
<p>This term will build and consolidate the Early Learning Goals and support the teaching and consolidation of the following RtP criteria:</p> <ul style="list-style-type: none"> <li>• 1AS-1</li> <li>• 1NF-1</li> <li>• 1NPV-2</li> </ul>	<p>This term will particularly support the teaching and consolidation of the following RtP criteria:</p> <ul style="list-style-type: none"> <li>• 1AS-1</li> <li>• 1NF-1</li> </ul>	<p>This term will particularly support the teaching and consolidation of the following RtP criteria:</p> <p>1AS-2</p> <p>1NF-1</p> <p>1NPV-2</p>

# Mastering Number

## Year 2 Overview

Term 1	Term 2	Term 3
<p>Pupils will have an opportunity to consolidate their understanding and recall of number bonds within 10; they will re-cap the composition of the numbers 11 to 20 and reason about their position within the linear number system.</p> <p><b>Pupils will:</b></p> <ul style="list-style-type: none"> <li>• review the composition of the numbers 6 to 9 as '5 and a bit'</li> <li>• compare numbers using the language of comparison and use the symbols <math>&lt;</math> <math>&gt;</math> <math>=</math></li> <li>• review the structure of even numbers (including exploring how even numbers can be composed of two odd parts or two even parts) and the composition of each of 6, 8 and 10</li> <li>• review the structure of odd numbers (including exploring how odd numbers can be composed of one odd part and one even part) and the composition of each of 7 and 9</li> </ul>	<p>Pupils will have an opportunity to use their knowledge of the composition of numbers within 10 to calculate within 20; they will explore the links between the numbers in the linear number system within 10 to numbers within 100, focusing on multiples of 10 and the midpoint of 50.</p> <p><b>Pupils will:</b></p> <ul style="list-style-type: none"> <li>• explore how the numbers 6 to 9 can be doubled using the '5 and a bit' and '10 and a bit' structure</li> <li>• use doubles to calculate near doubles</li> <li>• use bonds of 10 to reason about bonds of 20, in which the given addend is greater than 10</li> <li>• use known number bonds within 10 to calculate within 20, working within the 10-boundary</li> </ul>	<p>Pupils will have further opportunities to use their knowledge of the composition of numbers within 10 to calculate within 20 and to reason about equations and inequalities.</p> <p><b>Pupils will:</b></p> <ul style="list-style-type: none"> <li>• continue to explore a range of strategies to subtract across the 10-boundary</li> <li>• review bonds of 20 in which the given addend is greater than 10, and reason about bonds of 20, in which the given addend is less than 10</li> <li>• practise previously explored strategies to support their reasoning about inequalities and equations</li> <li>• review doubles and near doubles and transform additions in which two addends are adjacent odd/ even numbers into doubles</li> </ul>

<ul style="list-style-type: none"> <li>consolidate their understanding of the numbers 10 and 20 as '10 and a bit'</li> <li>consolidate their understanding of the linear number system to 20 and reason about midpoints</li> </ul>	<ul style="list-style-type: none"> <li>use their knowledge of bonds of 10 to find three addends that sum to 10</li> <li>use their knowledge of the composition of numbers within 20 to add and subtract across the 10-boundary</li> <li>use their understanding of the linear number system to 10 to position multiples of 10 on a 0--100 number line and reason about midpoints</li> </ul>	<ul style="list-style-type: none"> <li>consolidate previously taught facts and strategies through continued, varied practice</li> </ul>
<p>This term will particularly support the teaching and consolidation of the following RtP criteria:</p> <ul style="list-style-type: none"> <li>1NPV-2</li> <li>2NF-1</li> </ul>	<p>This term will particularly support the teaching and consolidation of the following RtP criteria:</p> <ul style="list-style-type: none"> <li>2NPV-2</li> <li>2NF-1</li> <li>2AS-1</li> </ul>	<p>This term will particularly support the teaching and consolidation of the following RtP criteria:</p> <ul style="list-style-type: none"> <li>2NF-1</li> <li>2AS-1</li> <li>2AS-2</li> </ul>

## Mastering Number at Key Stage 2

### Year 4 overview

Term 1	Term 2	Term 3
<p>Pupils will have an opportunity to consolidate multiplication facts that have been the focus of learning in KS1 and Year 3, such as doubles and the 5 and 10 times tables. They will explore multiplicative contexts and apply these facts to them and explore relationships between factors and associated products when looking at larger numbers. The use of gesture by the teacher and pupil will support with making connections.</p> <p><b>Pupils will:</b></p> <ul style="list-style-type: none"> <li>• consider ‘many as 1’ - seeing that a ‘unit’ can represent more than 1</li> <li>• Sort and classify factors and products using multiplicative number sense</li> <li>• recap doubles</li> <li>• recap <math>\times 10</math> and <math>\times 5</math> (connect to halving and doubling)</li> <li>• explore square numbers</li> <li>• use the distributive property to explore the facts in the 11 and 12 times table</li> <li>• use the distributive property to explore the facts in the 9 times table</li> </ul>	<p>Pupils will explore the core multiplication facts focusing on becoming secure with two facts per week, so that all are known and can be retrieved in a random order. As a class they will support one another to retrieve these facts and use a ‘Going for Gold’ approach, so that all facts are known as an oral response rather than having to be derived. They will continue to develop multiplicative number sense looking at, for example, the magnitude and/or relationship of related products.</p> <p><b>Pupils will:</b></p> <ul style="list-style-type: none"> <li>• sort and classify factors and products using multiplicative number sense</li> <li>• practise retrieving multiplication facts using the oral pattern</li> <li>• know all the core multiplication facts and those related to the 11 and 12 times table</li> <li>• represent the structure of a maths story.</li> </ul>	<p>Pupils will continue to retrieve known facts focussing on those that are less secure. They will continue to apply facts to multiplicative contexts and connect both multiplication and division equations to represent the maths story. In particular, they will connect missing factor equations to division. They will sort and classify products into multiples and not multiples of a given number knowing that for example <math>38 \div 4</math> will not result in a whole number quotient because 38 is not a multiple of 4.</p> <p><b>Pupils will:</b></p> <ul style="list-style-type: none"> <li>• practise retrieving multiplication facts using the oral pattern</li> <li>• sort and classify factors and products using multiplicative number sense</li> <li>• connect multiplicative contexts to writing and interpreting equations and connect multiplication equations, and multiplication equations with a missing factor, to division, knowing that the product in a multiplication equation is equivalent to the dividend in the corresponding division equation.</li> </ul>

<ul style="list-style-type: none"> <li>use the commutative property of multiplication to reorder factors to reduce the number of facts that need to be learnt and start to explore the core multiplication facts table (CMF).</li> </ul>		
<p>This term will build and consolidate the Year 3 RtP listed as well as support the consolidation of the following year 4 RtP criteria:</p> <p>3NF–2 Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number.</p> <p>4NF–1 Recall multiplication and division facts up to <math>12 \times 12</math>, and recognise products in multiplication tables as multiples of the corresponding number.</p> <p>4MD–3 Understand and apply the distributive property of multiplication.</p>	<p>This term will particularly support the teaching and consolidation of the following RtP criteria:</p> <p>4NF–1 Recall multiplication and division facts up to <math>12 \times 12</math>, and recognise products in multiplication tables as multiples of the corresponding number.</p> <p>4MD–2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication.</p> <p>4MD–3 Understand and apply the distributive property of multiplication.</p>	<p>This term will particularly support the teaching and consolidation of the following RtP criteria:</p> <p>4NF–1 Recall multiplication and division facts up to <math>12 \times 12</math>, and recognise products in multiplication tables as multiples of the corresponding number.</p> <p>4MD–2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication.</p>



## Mastering Number at Key Stage 2

### Year 5 overview

Term 1	Term 2	Term 3
<p>Pupils will have an opportunity to consolidate multiplication facts that have been the focus of learning in previous years and use the core multiplication facts table (CMF) to practise those that are less secure. They will explore multiplicative contexts and scale known facts by 10 and 100 and explore relationships between factors and associated products when looking at larger numbers. The use of representations, such as arrays, and the use of gesture by the teacher and pupil will support pupils to see structure and to make connections.</p> <p><b>Pupils will:</b></p> <ul style="list-style-type: none"> <li>continue to practise retrieving multiplication facts using their oral pattern and focus on those that are less secure</li> <li>explore contexts where 1 is a factor</li> <li>recap scaling by 10 and then apply to scaling by 100 (creating multiples of 10 and 100 - not looking at decimals)</li> <li>applying scaling in the contexts of ratios</li> <li>make links between multiplication and division expressions as well as</li> </ul>	<p>Pupils will continue to retrieve the core multiplication facts in a random order. They will practise these facts when using the written algorithms for multiplication and division. They will continue to develop multiplicative number sense and connect contexts to equations. When looking at division there will be a focus on remainders and knowledge of when a number is 1 more, 2 more, etc., than a given multiple. They will continue to sort improper fractions into those that will give a whole number quotient and those that do not, and use this knowledge to write improper fractions as mixed numbers and vice versa.</p> <p><b>Pupils will:</b></p> <ul style="list-style-type: none"> <li>continue to practise retrieving multiplication facts using their oral pattern so that they know all the core multiplication facts</li> <li>connect a multiplication and addition equation to a division equation with a remainder</li> </ul>	<p>Pupils will focus on multiplicative composition of number. When a context gives rise to more than two factors, they will use the associative and the commutative property of multiplication to make calculations more accessible. When working with larger numbers they will be encouraged to consider how they see the maths as you shift from one expression to another, for example <math>3 \times 72</math> to <math>3 \times 73</math>, and <math>3 \times 72</math> to <math>4 \times 72</math>, being able to explain what each number represents. They will also make connections when number facts have been scaled by 10 (or 100). For example, <math>5 \times 6 = 30</math>; <math>30 \div 5 = 6</math> and <math>50 \times 6 = 300</math>; <math>300 \div 5 = 6</math>. They will also apply known facts to when a factor is <math>\frac{1}{10}</math> the size making connections to decimal fractions where the denominator of a unit fraction is a multiple of 10.</p> <p><b>Pupils will:</b></p> <ul style="list-style-type: none"> <li>continue to connect multiplicative contexts to writing and interpreting equations</li> <li>apply scaling by, 10, 100, <math>\frac{1}{10}</math> or <math>\frac{1}{100}</math> to known facts</li> </ul>

<p>equations in different multiplicative contexts</p> <ul style="list-style-type: none"> <li>• write an improper fraction and as a whole number such as <math>\frac{36}{6} = 6</math>. The dividend is a multiple of the divisor.</li> <li>• find a unit fraction of a number to connect the known division fact to scaling down. The dividend is a multiple of the divisor.</li> <li>• continue to explore multiplicative contexts.</li> </ul>	<ul style="list-style-type: none"> <li>• develop multiplicative number sense through using knowledge of divisibility laws</li> <li>• sort and classify improper fractions into those that give a whole number quotient and those that do not.</li> </ul>	<ul style="list-style-type: none"> <li>• look at the multiplicative composition of number</li> <li>• explore expressions with three factors and use brackets, considering how the associative property and commutative property can be used to make calculations easier to solve.</li> </ul>
<p>This term will build and consolidate some of the Year 4 RtPs listed as well as support the pupils understanding of the following Year 5 RtP criteria:</p> <p><b>4MD–1</b> Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size.</p> <p><b>4NF–1</b> Recall multiplication and division facts up to <math>12 \times 12</math>, and recognise products in multiplication tables as multiples of the corresponding number.</p> <p><b>4MD–3</b> Understand and apply the distributive property of multiplication.</p> <p><b>5NF–1</b> Secure fluency in multiplication table facts, and corresponding division facts, through continued practice.</p>	<p>This term will build and consolidate the Year 4 RtPs listed as well as support the pupils understanding of the following Year 5 RtP criteria:</p> <p><b>4NF–1</b> Recall multiplication and division facts up to <math>12 \times 12</math> and recognise products in multiplication tables as multiples of the corresponding number.</p> <p><b>4NF–2</b> Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders, and interpret remainders appropriately according to the context.</p> <p><b>4MD–2</b> Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication.</p> <p><b>5NF–1</b> Secure fluency in multiplication table facts, and corresponding division facts, through continued practice.</p>	<p>This term will build and consolidate the Year 4 RtPs listed, as well as support the pupils understanding of the following Year 5 RtP criteria:</p> <p><b>4NF–1</b> Recall multiplication and division facts up to <math>12 \times 12</math>, and recognise products in multiplication tables as multiples of the corresponding number.</p> <p><b>4MD–2</b> Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication.</p> <p><b>5NPV–1</b> Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1. Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01. Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01.</p>

		<p><b>5NF–1</b> Secure fluency in multiplication table facts, and corresponding division facts, through continued practice.</p> <p><b>5NF–2</b> Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth).</p> <p><b>5MD–1</b> Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size.</p>
--	--	--