



## Mathematics Curriculum

### Our Vision

### Nurturing and Inspiring Success in Every Child

#### INTENT

Pupils should learn the fundamentals of mathematics with varied and frequent practice. They should learn to reason mathematically and solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

#### IMPLEMENTATION

All our curriculum is shaped by our school vision which aims to enable all children, regardless of their gender, transgender, religion, disability, ethnicity, special needs, or background to achieve their potential. Each learner is unique and has a preferred learning style which teachers understand. Above all our philosophy is to make learning fun.

<u>Early Years Foundation Stage</u>		
<u>30-50 Months</u>	<u>40-60+ months</u>	<u>Early Learning Goal</u>
<u>Numbers</u>		
<ul style="list-style-type: none"> <li>• Uses some number names and number language spontaneously.</li> <li>• Uses some number names accurately in play.</li> <li>• Recites numbers in order to 10.</li> <li>• Knows that numbers identify how many objects are in a set.</li> <li>• Beginning to represent numbers using fingers, marks on paper or pictures.</li> <li>• Sometimes matches numeral and quantity correctly.</li> <li>• Shows curiosity about numbers by offering comments or asking questions.</li> <li>• Compares two groups of objects, saying when they have the same number.</li> <li>• Shows an interest in number problems.</li> <li>• Separates a group of three or four</li> </ul>	<ul style="list-style-type: none"> <li>• Recognise some numerals of personal significance.</li> <li>• Recognises numerals 1 to 5.</li> <li>• Counts up to three or four objects by saying one number name for each item.</li> <li>• Counts actions or objects which cannot be moved.</li> <li>• Counts objects to 10, and beginning to count beyond 10.</li> <li>• Counts out up to six objects from a larger group.</li> <li>• Selects the correct numeral to represent 1 to 5, then 1 to 10 objects.</li> <li>• Counts an irregular arrangement of up to ten objects.</li> <li>• Estimates how many objects they can see and checks by counting them.</li> <li>• Uses the language of 'more' and</li> </ul>	<p>Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.</p>

<p>objects in different ways, beginning to recognise that the total is still the same.</p> <ul style="list-style-type: none"> <li>• Shows an interest in numerals in the environment.</li> <li>• Shows an interest in representing numbers.</li> <li>• Realises not only objects, but anything can be counted, including steps, claps or jumps.</li> </ul>	<p>'fewer' to compare two sets of objects.</p> <ul style="list-style-type: none"> <li>• Finds the total number of items in two groups by counting all of them.</li> <li>• Says the number that is one more than a given number.</li> <li>• Finds one more or one less from a group of up to five objects, then ten objects.</li> <li>• In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting.</li> <li>• Records, using marks that they can interpret and explain.</li> <li>• Begins to identify own mathematical problems based on own interests and fascinations.</li> </ul>	
--	---	--

**Shape, Space and Measure**

<b><u>30-50 Months</u></b>	<b><u>40-60+ months</u></b>	<b><u>Early Learning Goal</u></b>
<ul style="list-style-type: none"> <li>• Shows an interest in shape and space by playing with shapes or making arrangements with objects.</li> <li>• Shows awareness of similarities of shapes in the environment.</li> <li>• Uses positional language.</li> <li>• Shows interest in shape by sustained construction activity or by talking about shapes or arrangements.</li> <li>• Shows interest in shapes in the environment.</li> <li>• Uses shapes appropriately for tasks.</li> <li>• Beginning to talk about the shapes of everyday objects, e.g. 'round' and 'tall'.</li> </ul>	<ul style="list-style-type: none"> <li>• Beginning to use mathematical names for 'solid' 3D shapes and 'flat' 2D shapes, and mathematical terms to describe shapes.</li> <li>• Selects a particular named shape.</li> <li>• Can describe their relative position such as 'behind' or 'next to'.</li> <li>• Orders two or three items by length or height.</li> <li>• Orders two items by weight or capacity.</li> <li>• Uses familiar objects and common shapes to create and recreate patterns and build models.</li> <li>• Uses everyday language related to time.</li> <li>• Beginning to use everyday language related to money.</li> <li>• Orders and sequences familiar events.</li> <li>• Measures short periods of time in simple ways.</li> </ul>	<p>Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.</p>

## Key Stage 1

### Year 1

### Year 2

#### Number and Place Value

- count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
- count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s
- given a number, identify 1 more and 1 less
- identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least
- read and write numbers from 1 to 20 in numerals and words

- count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward
- recognise the place value of each digit in a two-digit number (10s, 1s)
- identify, represent and estimate numbers using different representations, including the number line
- compare and order numbers from 0 up to 100; use  $<$ ,  $>$  and  $=$  signs
- read and write numbers to at least 100 in numerals and in words
- use place value and number facts to solve problems

#### Addition and Subtraction

- read, write and interpret mathematical statements involving addition (+), subtraction ( $-$ ) and equals (=) signs
- represent and use number bonds and related subtraction facts within 20
- add and subtract one-digit and two-digit numbers to 20, including 0
- solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as  $7 = ? - 9$

- solve problems with addition and subtraction:
  - using concrete objects and pictorial representations, including those involving numbers, quantities and measures
  - applying their increasing knowledge of mental and written methods
- recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
- add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
  - a two-digit number and 1s
  - a two-digit number and 10s
  - 2 two-digit numbers
  - adding 3 one-digit numbers
- show that addition of 2 numbers can be done in any order (commutative) and subtraction of 1 number from another cannot
- recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems

#### Multiplication and Division

- 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

- recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
- calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication ( $\times$ ), division ( $\div$ ) and equals (=) signs
- show that multiplication of 2 numbers can be done in any

	<p>order (commutative) and division of 1 number by another cannot</p> <ul style="list-style-type: none"> <li>• solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts</li> </ul>
--	---

### Number Fractions

<ul style="list-style-type: none"> <li>• recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity</li> <li>• recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity</li> </ul>	<ul style="list-style-type: none"> <li>• recognise, find, name and write fractions <math>\frac{1}{3}</math>, <math>\frac{1}{4}</math>, <math>\frac{2}{4}</math> and <math>\frac{3}{4}</math> of a length, shape, set of objects or quantity</li> <li>• write simple fractions, for example <math>\frac{1}{2}</math> of 6 = 3 and recognise the equivalence of <math>\frac{2}{4}</math> and <math>\frac{1}{2}</math></li> </ul>
---	--

### Measurements

<ul style="list-style-type: none"> <li>• compare, describe and solve practical problems for: <ul style="list-style-type: none"> <li>- lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]</li> <li>- mass/weight [for example, heavy/light, heavier than, lighter than]</li> <li>- capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]</li> <li>- time [for example, quicker, slower, earlier, later]</li> </ul> </li> <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 denominations of coins and notes</li> <li>• sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]</li> <li>• recognise and use language relating to dates, including days of the week, weeks, months and years</li> <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> </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 (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels</li> <li>• compare and order lengths, mass, volume/capacity and record the results using &gt;, &lt; and =</li> <li>• recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value</li> <li>• find different combinations of coins that equal the same amounts of money</li> <li>• solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change</li> <li>• compare and sequence intervals of time</li> <li>• tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times</li> <li>• know the number of minutes in an hour and the number of hours in a day</li> </ul>
--	---

### Geometry – Properties of Shape

<ul style="list-style-type: none"> <li>• recognise and name common 2-D and 3-D shapes, including: <ul style="list-style-type: none"> <li>- 2-D shapes [for example, rectangles (including squares), circles and triangles]</li> <li>- 3-D shapes [for example, cuboids (including cubes), pyramids and</li> </ul> </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> </ul>
---	--

spheres]	<ul style="list-style-type: none"><li>• identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]</li><li>• compare and sort common 2-D and 3-D shapes and everyday objects</li></ul>
<b><u>Geometry – Position and Direction</u></b>	
<ul style="list-style-type: none"><li>• describe position, direction and movement, including whole, half, quarter and three-quarter turns</li></ul>	<ul style="list-style-type: none"><li>• order and arrange combinations of mathematical objects in patterns and sequences</li><li>• use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)</li></ul>

### **IMPACT**

By the end of the Foundation Stage, we aim to create confident mathematical thinking from children who have a solid concept and understanding of basic numbers, being able to work with these numbers in a range of contexts. They should be able to solve everyday problems in a range of contexts, providing reasoning for their solution. Children will be equipped for the next stage of their learning and ready for the National Curriculum.

By the end of KS1 we aim children to be fluent in the fundamentals of mathematics. They should have the skills to solve problems by applying their mathematics to a variety of situations. Children will be able to reason mathematically by following a line of enquiry and be excited to move on to the next stage of their learning.