

How is maths taught in Years 1 and 2?

In Year 1 and 2, children build on their learning from Reception, continuing to use a wide range of **concrete apparatus and pictorial representations** to gain secure foundations in their understanding of number, geometry, statistics and measures. They begin to record their mathematical thinking frequently in their maths exercise books, both pictorially and using numerals. **Fluency** is established for each objective, before applying their learning to **reasoning and problem solving** tasks. By the end of Key Stage 1, the children will have been taught all the skills they need to meet the requirements of the **National Curriculum** for Years 1 and 2.

In the summer term of Year 2, the children will complete the optional 'End of Key Stage 1' assessments. For maths, this consists of an arithmetic test and a reasoning test. These tests are then marked by the teachers and the results are used by the teachers to help them make a secure judgement for their final assessment of each child at the end of Key Stage 1. The teachers' assessments will state whether or not each child is 'working towards the expected standard', 'working at the expected standard' or 'working at greater depth within the expected standard'.

At Parkfield, maths is structured using the NCETM programme which was written in line with the DfE's Ready to Progress criteria (2020). We continue to use the concrete, pictorial and abstract approach to ensure children have a good understanding of concepts before moving onto more abstract representations. We use a range of representations including bar and part-whole modelling throughout the school, to support the children's conceptual understanding of mathematical problems. This programme is used alongside other quality resources to ensure children are exposed to a range of fluency, reasoning and problem-solving activities that foster our 'mastery approach'. The 'mastery approach' is about teaching for understanding – ensuring the children know why they are doing certain mathematical processes, how they work and how to apply them in a range of situations. It opposes teaching 'tricks' or procedures without understanding, which results in superficial learning. Key aspects of the mastery approach:

- Children learn a maths topic in-depth, before moving onto the next maths topic
- Maths topics are progressive E.g. ensuring place value is secure before working on calculations
- For each National Curriculum objective, children solve questions, problems and work on tasks that are presented in a variety of ways
- Concrete apparatus, pictorial representations and abstract representations are used
- Correct use of mathematical vocabulary
- Collaborative working
- Teachers address misconceptions with children as they arise, planning for common misconceptions proactively, e.g. Which of these are triangles. How do you know? Why is X not a triangle?



- Explaining, modelling and justifying mathematical ideas

Children have a daily maths lesson and also additional daily 'Number fluency' sessions. This follows the Number Sense programme which is a carefully designed programme beginning in EYFS and continues through to term 1 of year 3. This ensures progressive and systematic learning of the key number facts and mental strategies needed to become fluent and confident mathematicians.

In classrooms, children have access to a wide range of maths resources to support them with their learning. All classes have a 'Maths Working Wall', which displays current and relevant procedures, vocabulary, models and images for their reference.

Every fortnight, children will be set a piece of maths homework that will enable them to practise and consolidate their learning in class. Practising their number bonds and times tables at home will also be of great benefit.

What will my child learn about in maths?

We follow the National Curriculum and teach the statutory objectives for each year group.

Year 1



Number – number and place value

Statutory requirements

Pupils should be taught to:

- 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 twos, fives and tens
- given a number, identify one more and one 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.

Number – fractions

Statutory requirements

Pupils should be taught to:

- recognise, find and name a half as one of two equal parts of an object, shape or quantity
- recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.

Geometry – position and direction

Statutory requirements

Pupils should be taught to:

- describe position, direction and movement, including whole, half, quarter and three-quarter turns.

Geometry – properties of shapes

Statutory requirements

Pupils should be taught to:

- recognise and name common 2-D and 3-D shapes, including:
 - 2-D shapes [for example, rectangles (including squares), circles and triangles]
 - 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].

Measurement

Statutory requirements

Pupils should be taught to:


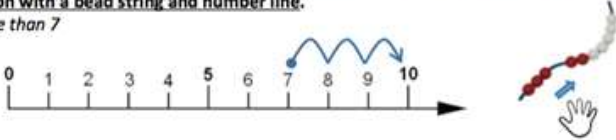
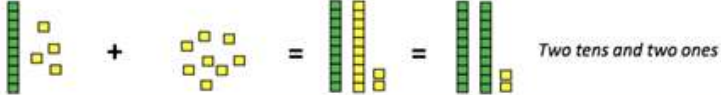

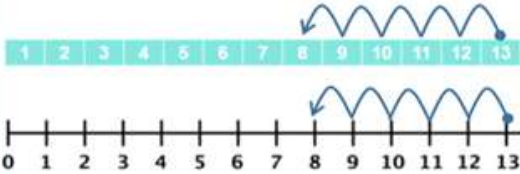


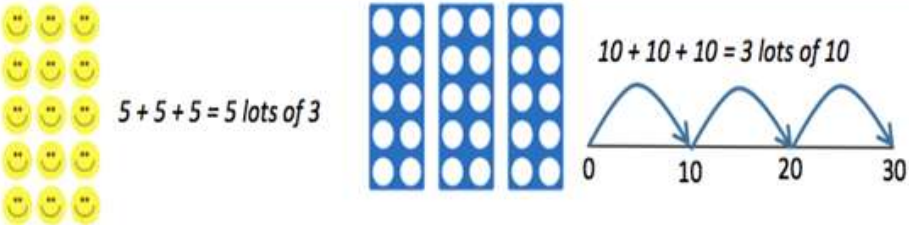
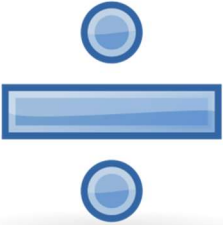
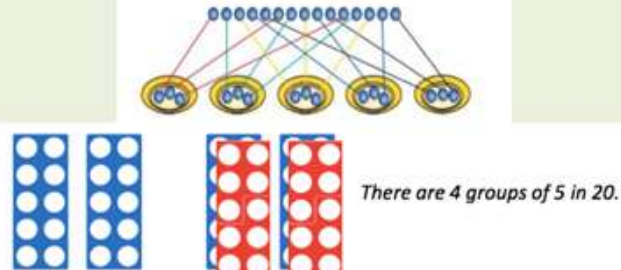
- compare, describe and solve practical problems for:
 - lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]
 - mass/weight [for example, heavy/light, heavier than, lighter than]
 - capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]
 - time [for example, quicker, slower, earlier, later]
- measure and begin to record the following:
 - lengths and heights
 - mass/weight
 - capacity and volume
 - time (hours, minutes, seconds)
- recognise and know the value of different denominations of coins and notes
- sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]
- recognise and use language relating to dates, including days of the week, weeks, months and years
- tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.

Calculation in Year 1 :

Number – addition and subtraction

Number – multiplication and division

Our calculation policy and posters set out how we teach the four operations in line with the requirements of the National Curriculum:

<p>ADDITION</p> 	<ul style="list-style-type: none"> Count on (augmentation), first in ones, then using number facts (bridging/regrouping). Add one and two digit numbers to 20, use dienes. <p>Counting on with a bead string and number line. E.g. 3 more than 7</p>  <p>Begin to use Dienes apparatus to support understanding of place value and addition. E.g.</p>  <p>Two tens and two ones</p>
<p>SUBTRACTION</p> 	<ul style="list-style-type: none"> Count back, first in ones then using number facts. Two-digit take one-digit, comparing quantities to find the difference. <p>Taking away using a number track and number line.</p>  <p>Start at 13 and count back 5 13 take away 5 leaves 8 13 subtract 5 equals 8</p> <p>Begin to bridge the tens:</p>  <p>13 - 5 = 8</p>
<p>MULTIPLICATION</p> 	<ul style="list-style-type: none"> Double single-digit numbers, then to 30 Count on in steps (2s, 5s, 10s) and begin to learn 2, 5 and 10 times table facts Record as repeated addition and an array  <p>$5 + 5 + 5 = 5 \text{ lots of } 3$ $10 + 10 + 10 = 3 \text{ lots of } 10$</p>
<p>DIVISION</p> 	<ul style="list-style-type: none"> Halving by sharing and simple division by grouping objects Begin to find a quarter by halving and halving again  <p>There are 4 groups of 5 in 20.</p>

Year 2

Number – number and place value

Statutory requirements

Pupils should be taught to:

- count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward
- recognise the place value of each digit in a two-digit number (tens, ones)
- 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.

Number – fractions

Statutory requirements

Pupils should be taught to:

- 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
- write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.

Geometry – properties of shapes

Statutory requirements

Pupils should be taught to:

- identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line
- identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces
- identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]
- compare and sort common 2-D and 3-D shapes and everyday objects.

Geometry – position and direction

Statutory requirements

Pupils should be taught to:

- order and arrange combinations of mathematical objects in patterns and sequences
- 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).

Measurement

Statutory requirements

Pupils should be taught to:

- choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ($^{\circ}\text{C}$); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels
- compare and order lengths, mass, volume/capacity and record the results using $>$, $<$ and $=$
- recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value
- find different combinations of coins that equal the same amounts of money
- solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change
- compare and sequence intervals of time
- 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
- know the number of minutes in an hour and the number of hours in a day.

Statistics

Statutory requirements

Pupils should be taught to:


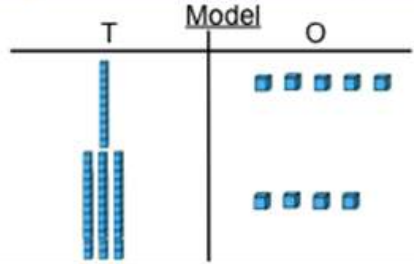

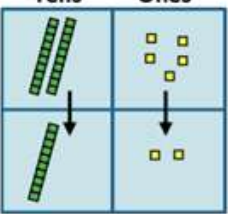
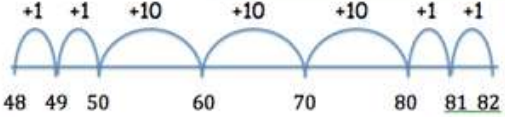

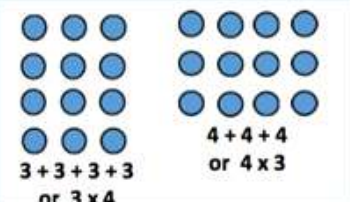
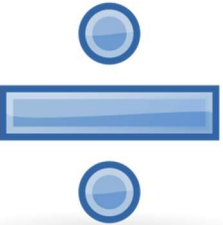
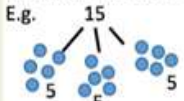


- interpret and construct simple pictograms, tally charts, block diagrams and simple tables
- ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity
- ask and answer questions about totalling and comparing categorical data.

Calculation in Year 2:

Number – addition and subtraction

Number – multiplication and division

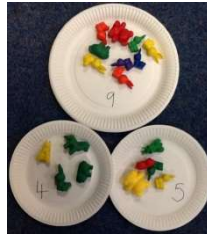
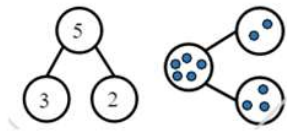
Our calculation policy and posters set out how we teach the four operations in line with the requirements of the National Curriculum:

<p>ADDITION</p> 	<p>Addition of pairs of two digit numbers, add ones then the tens</p> <ul style="list-style-type: none"> Eg '5 ones add 4 ones, 1 ten add 3 tens'. <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Model</p>  </div> <div style="text-align: center;"> <p>Calculations</p> $\begin{array}{r} 15 \\ +34 \\ \hline 49 \end{array}$ </div> </div>
<p>SUBTRACTION</p> 	<ul style="list-style-type: none"> Two-digit subtract two-digit using dienes, counting on to find the difference using a numberline. <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Tens Ones</p>  <p>37 subtract 12 leaves 25</p> </div> <div style="text-align: center;">  <p>48 49 50 60 70 80 81 82</p> <div style="border: 1px solid black; padding: 2px; display: inline-block;">82 - 48 = 34</div> </div> </div>
<p>MULTIPLICATION</p> 	<ul style="list-style-type: none"> Recall and use multiplication and division facts for 2, 5 and 10 and begin those for 4 and 8 Use commutativity - 5×3 same as 3×5 Double two-digit numbers <div style="text-align: center;">  <p>$3 + 3 + 3 + 3$ or 3×4</p> <p>$4 + 4 + 4$ or 4×3</p> </div>
<p>DIVISION</p> 	<ul style="list-style-type: none"> Need to understand division as grouping, how many groups of and introduction to remainders. <p>Recognise that $15 \div 3 = 5$, for example, can be solved both by sharing and grouping.</p> <p>E.g.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Sharing: 15 sweets are shared equally between 3 children. How many sweets will each child receive?</p> </div> <div style="text-align: center;">  <p>Grouping: 3 apples are placed in each bag. If I have 15 apples, how many full bags of apples will I have?</p> </div> </div> <p>Introduce remainders. E.g. $14 \div 3 = 4$ remainder 2</p> <div style="text-align: center;">  <p>remainder 2</p> </div>

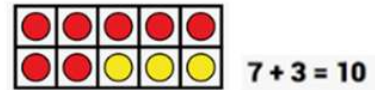
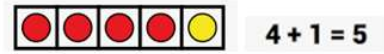
What resources will my child use to help them understand?

Here are some of the resources that children use in Key Stage 1 to help them in their understanding of maths:

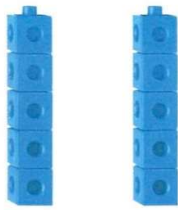
Part –Whole Model



Five Frame and Ten Frame



Cubes

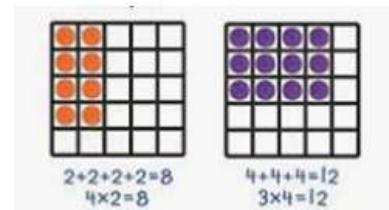


Double 5 is 10

Place Value Cards



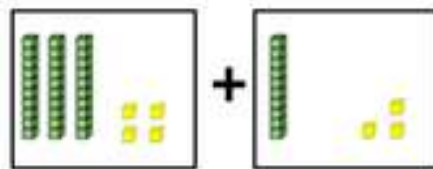
Arrays



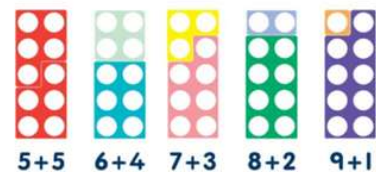
Bead strings



Base 10 (Dienes)



Numicon



Children also use **dice**, **dominoes**, **digit cards** and any other practical equipment in their learning environment to support their understanding.

Children progress towards drawing pictorial representations of maths equipment to help them with their learning.

What maths vocabulary is used for this age group?

Key vocabulary:

<p style="text-align: center;">Addition</p> <p>add, addition, more, plus, make, sum, total, altogether, how many more to make...? how many more is... than...? how much more is...?, =, equals, sign, is the same as, tens, ones, partition, equation, expression, addend</p>	<p style="text-align: center;">Subtraction</p> <p>subtraction, subtract, take away, difference, difference between, minus, less than, one less, two less... ten less..., equation, expression</p>
<p style="text-align: center;">Multiplication</p> <p>multiple, multiplication array, multiplication tables / facts, groups of, lots of, times, columns, rows, equation, expression</p>	<p style="text-align: center;">Division</p> <p>group in pairs, 3s ... 10s etc, equal groups of, divide, ÷, divided by, divided into, remainder, equation, expression</p>
<p style="text-align: center;">Measure</p> <p>Measure, weigh, length, height, balance, Units of measure – cm/m, m/km, g/kg, ml/l, temperature (degrees) Comparison of measures vocabulary - heavy/lighter/light, long/ shorter/short, full/empty, thick/thin, deep/shallow, wide/narrow etc. Time vocabulary -days of the week, months of the year, quick/slow, today/tomorrow/yesterday, morning/afternoon/evening, early/late, second/minute/hour/day/week/month/year, o'clock, half past, quarter past/to Money vocabulary - coin, penny, pence, pound, price, cost, buy, sell, spend, spent, pay, change, expensive, cheap, coin and note denominations</p>	<p style="text-align: center;">Geometry</p> <p>Shape, pattern, flat, curved, straight, round, hollow, solid, corner, face, side, edge, end, circle, triangle, square, rectangle, cube, pyramid, sphere, cone, symmetrical, line of symmetry, mirror line, reflection, vertex, verticies</p> <p>Position and direction vocabulary - over, under, above, below, top, bottom, side on, in, outside, inside, around, in front, behind, front, back before, after, beside, next to, opposite, apart, rotation, clockwise, anticlockwise, straight line, ninety degree turn, right angle</p>
<p style="text-align: center;">Fractions</p> <p>whole, equal parts, one half, two halves, four equal parts, a quarter, two quarters, three quarters, one third, a third, equivalence, equivalent</p>	<p style="text-align: center;">Statistics</p> <p>count, tally, sort, vote, graph, block graph, pictogram, represent, group, set, list, table, label, title, most popular, most common, least popular, least common</p>

Examples of key questions that are used to assess and develop understanding:

What do you notice?	Why did you use that strategy?
What's the same? What's different?	Is there another way? How many ways are there?
Where could you start? Is it possible to start here?	Show me another example that fits the rule / we could solve in the same way
What does _____ mean?	I wonder if it makes a difference if...
What do you already know about...?	What if...?
Are you sure? Prove it / Show me using...	Why does / doesn't it work?
How do you know?	Can you spot my mistake?
How do you know <u>it's not</u> ...?	Which is the odd one out? How do you know?
Can you tell me / show me what you were doing?	

How can we help at home?

TOP TIPS:

1. Be positive about maths and avoid saying things like 'I can't do maths' or 'I hated maths at school'. A negative attitude could cause your child to think like that themselves.
2. Talk about the maths in everyday life, and ask your child how they work out problems or questions.
3. Let your child enjoy talking about what they've learned, and praise effort and perseverance.

EASY ACTIVITIES TO DO AT HOME:

- Support your child with their maths homework and practising number facts (number bonds and times tables)
- Sing songs and rhymes that promote counting and understanding of number e.g. 'Ten green bottles', 'One, two buckle my shoe', 'Five little speckled frogs' etc.
- Practise counting when doing everyday activities such as counting cutlery when laying the table, counting toys when tidying up etc.
- Play games which encourage counting and subitising – snakes and ladders, dice games, dominoes.
- Cooking/ gardening / DIY with your child helping to reinforce understanding of measures
- Talk about time – for example, how long does it take to walk to school? Practise telling the time (o'clock, half past, quarter past/to)
- Go on a shape hunt– how many circles, squares, rectangles, triangles can your child find? You can look for patterns too.
- Put things in order – of weight, height, size. Ask your child to help you organise things at home.
- Talk about the price of items when shopping and which coins are needed.

Useful websites:

<https://www.bbc.com/bitesize/subjects/zjxhfg8>

[Times Tables Rock Stars: Play](#)

<https://www.topmarks.co.uk/maths-games/5-7-years/counting>

[Activities for Children | National Numeracy](#)

<https://nrich.maths.org/9086>