The Maths Curriculum at Bernards Heath Infant and Nursery School

During Year 2 we teach skills and knowledge in Maths to prepare the children for lifelong learning and to enable them to make a positive contribution as an adult. Every child is taught to challenge themselves in order to succeed. The challenges in each lesson are presented to children allowing them to choose learning that grows their brain. Teachers and teaching assistants support children and carefully monitor the choices they make throughout each lesson. Our belief in establishing a 'Growth Mindset' is embedded in every classroom. The information below outlines the expectations for key skills and knowledge as well as the context including the experiences children have to acquire these. The National Curriculum has a focus on making sure that the children are explicitly taught basic principles and that they have a broad and balanced curriculum with plenty of opportunities to apply what they have learnt.

Subject: Maths	
The Year 2 Learner	Context – What this looks like in the classroom:
Working mathematically By the end of Year 2, children will solve problems with one or a small number of simple steps. Children will discuss their understanding and begin to explain their thinking using appropriate mathematical vocabulary, hands-on resources and different ways of recording. They will ask simple questions relevant to the problem and begin to suggest ways of solving them.	When solving problems in Year 2 the children learn to use steps to break down the process. Step 1: read and think. Step 2: Highlight important words. Step 3: Decide - addition, subtraction, multiplication or division? Step 4: Have a go! Step 5: Double check. Children use learning partners and group work to discuss word problems. In Step 4 the children can show their working out in many different ways such as using concrete resources e.g. Dienes, pictorial methods as well as writing number sentences. This demonstrates their understanding of the problem. Through verbal and written questioning children are asked to explain their ideas convincingly. For example using 'because' and their knowledge of number relationships to give reasons.

Number

Counting and understanding numbers

Children will develop their understanding of place value of numbers to at least 100 and apply this when ordering, comparing, estimating and rounding. Children begin to understand zero as a place holder as this is the foundation for manipulating larger numbers in subsequent years. Children will count fluently forwards and backwards up to and beyond 100 in multiples of 2, 3, 5 and 10 from any number. They will use hands-on resources to help them understand and apply their knowledge of place value in two digit numbers, representing the numbers in a variety of different ways.

Children in Year 2 have access to many resources to help them develop in number including number lines, Numicon, Dienes and cubes.

A 100 square can be used to teach counting in 2s, 3s, 5s and 10s as well as supporting counting backwards from any given number. An interactive 100 square is often used in daily math meetings to enhance mental fluency.

Calculating

Children learn that addition and multiplication number sentences can be re-ordered and the answer remains the same (commutativity) such as 9+5+1= 5+1+9. They learn that this is not the case with subtraction and division. They solve a variety of problems using mental and written calculations for +, -, x, ÷ in practical contexts. These methods will include partitioning which is where the number is broken up into more manageable parts (e.g. 64 = 60 + 4 or 50 + 14), re-ordering (e.g. moving the larger number to the beginning of the number sentence when adding several small numbers) and using a number line. Children will know the 2, 5 and 10 times tables, as well as the matching division facts (4 x 5 = 20, 20 ÷ 5 = 4) and can recall them quickly and accurately. They apply their knowledge of addition and subtraction facts to 20 and can use these to work out facts up to 100.

Dienes are used to teach an understanding of 10s and 1s in place value. For example we would ask the children to make the number 29 with the appropriate amount of tens and ones. When teaching calculation, teachers model the use of all mathematical vocabulary for +, -, x, ÷, take-away, subtract, minus, plus etc. Using Dienes, cubes or pictorial methods, children can visually lay out their number sentence. They learn to investigate to see how and when they can change the order of a number sentence e.g. 7+3, 3+7 and use the inverse operation e.g. 7x2=14, 14÷2=7.

Fractions including decimals

Throughout Year 2, children will develop their understanding of fractions and the link to division. They explore this concept using pictures and hands-on resources. They will solve problems involving fractions (e.g. find 1/3 of the hexagon or ¼ of 12) and record what they have done. They will form an understanding that some fractions have the same value (equivalent) e.g. ½ = ¼.

Resources used to teach fractions include shapes, objects and pictures e.g. cake and pizza. We start by cutting an object equally in to half and quarter, with constant reminders about sharing the pieces equally as fractions. Through many examples, such as sharing toys equally between four people, the children can see the real life contexts of fractions. Year 2 then move on to learning how to write fractions and associating this with its meaning, the bottom number being how many equal pieces there are in the shape or you are sharing in to and the top number being the amount shaded or taken.

Measurement

Children will estimate, choose, use and compare a variety of measurements for length, mass, temperature, capacity, time and money. By the end of Year 2, they will use measuring apparatus such as rulers and scales accurately. They will use their knowledge of measurement to solve problems (e.g. how many ways to make 50p). They extend their understanding of time to tell and write it on an analogue clock to 15 minute intervals. They will know key time related facts (minutes in an hour, hours in a day) and relate this to their everyday life.

Resources used to teach measurement include rulers, metre sticks, timers, clocks, scales, jugs and money (coins and notes). The children learn to solve problems such as:
Can you draw a triangle with sides of 4cm?
Which is heavier, a can of baked beans or a packet of sugar? How do you know?
You go into a shop with £3.50 and spend £2.70. How much change do you need?
It is 4 o'clock now. Your cake needs an hour and 30 minutes in the oven. What time will you take it out?

Geometry

Children will identify, describe, compare and sort common 2-D and 3-D shapes according to their properties (sides, vertices, edges, faces, symmetry) and apply this knowledge to solve simple problems. They develop their understanding by finding examples of 3-D shapes in the real world and exploring the 2-D shapes that can be found on them (e.g. a circle is one of the faces on a cylinder). Children begin to describe position, direction and movement in a range of different situations, including understanding rotation (turning through right angles clockwise and anti-clockwise). They

Children often take Geometry learning outside, to find 2D shapes and 3D solids and identify their properties in real life situations. For example, shape hunts in the outside areas looking for cylinders, cubes or pentagons.

They learn to widen their mathematical vocabulary, exploring nets and building 3D solids, naming the edges, vertices and faces and comparing their similarities and differences.

use their knowledge of shape in patterns and sequences. **Statistics** Children sort and compare information, communicating findings by asking and answering questions. They will draw simple pictograms, bar charts, tally charts and tables.	This area of maths is taught in a cross curricular way. Children collect data, for example finding out which is the favourite animal in their class and present this in graphs answering questions about most and least popular and finding the difference between totals. In science children present their findings from investigations in graph form.