



# Maths Curriculum

Our vision:

‘We are passionate about enabling our children to become fluent and confident mathematicians who are able to solve problems and explain their reasoning skills.’



## What is a mastery approach to teaching maths?

*'The essential idea behind 'mastery' is that all children need a deep understanding of the mathematics they are learning so that there is no need for separate catch-up programmes due to some children falling behind. Children who, under other teaching approaches, can often fall a long way behind are better able to keep up with their peers, so that gaps in attainment are narrowed whilst the attainment of all is raised.'* Surrey Maths Hub

We are currently working with the Surrey Maths Hub to develop the teaching of Mathematics through a Mastery approach across the whole school. In order to achieve these aims, topics are taught in blocks to ensure all children have the time to grasp the key learning in each topic in order to become fluent and gain a deep understanding. The subject will be taught with the highest expectations, with the opportunity for all children to aim for the highest standard and then when needed misconceptions will be dealt with quickly to accelerate progress.



# Number Connections

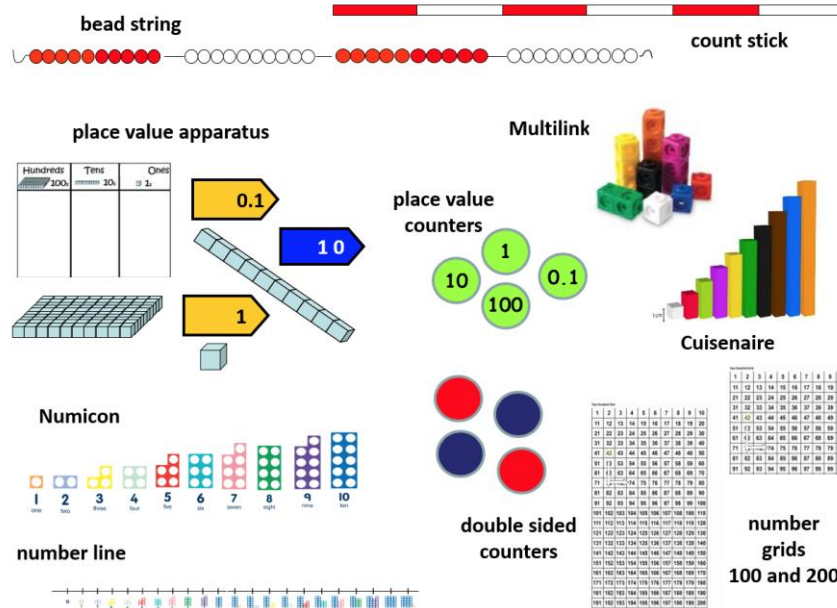
Making number connections throughout each stage of your child's primary education is of vital importance to their understanding and knowledge of number and place value.

- Number bonds to 10, 20 and 100
- Times Tables (including doubling)
- Division facts (including halving)
- Place value knowledge - understanding the value each digit in a number

If children are secure in their number knowledge, then they will be able to adapt this knowledge and apply it to multiplying and dividing larger numbers and decimals. This knowledge also helps to understand and convert fractions, decimals and percentages in upper key stage 2 as well as activating adding and subtracting when using written methods of calculations.

# Resources in the classroom

At Epsom Primary and Nursery School, we present the children with a range of ‘manipulatives’ or concrete resources that they can use to represent their learning. These resources can also provide scaffolding to children who are finding concepts challenging or extra challenge when children use the resources to prove their thinking. These are some of the concrete resources that are available to the children.





# Fluency in the classroom

*The National Curriculum for Mathematics aims to ensure that all pupils: become **fluent** in the fundamentals of Mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.*

In practice, this means that children are given the opportunity to practice a new skill to develop fluency before numbers and questions are varied to further embed their understanding.

The children will have the opportunity to develop an aspect of Maths over 2 - 5 weeks in a range of contexts develop both their fluency and confidence.



# Problem solving in the classroom

*The National Curriculum for Mathematics aims to ensure that all pupils: can **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*

Alongside fluency, all children will have the opportunity to apply their knowledge to a word problem. This aspect will be modelled by the teacher which will include: underlining the key words or numbers, thinking through how many steps will be required and which number operations will be used, how to check that they have come to a reasonable answer once the calculation has been completed.

Problem solving can involve one, two or multiple steps and can even take the form of an open ended investigation with more than one solution.

The children will be taught that maths is more than just reaching the answer. It is understanding the process: the connections between numbers and number operation, enabling them to be confident mathematicians.



# Reasoning in the classroom

*The National Curriculum for Mathematics aims to ensure that all pupils: reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language*

Throughout each area of learning in Mathematics, all staff are constantly developing the children's reasoning skills through questioning and encourage the children to justifying their answers both verbally and in written full sentences. Here are some examples of some reasoning style questions:

Always, sometimes, never

What do you notice?

What's the same? What's different?

If this is the answer, what's the question?

Odd one out

What else do we know?

Strange and obvious

Maths stories

Convince me



# Written methods of calculation

At each stage of your child's mathematical education, they will need to be able to represent numbers and calculations using manipulatives (resources) through pictorial representation and finally through written methods. These steps are important to ensure that your child has a secure understanding of what is happening when each written method has been carried out.

For further information on written methods in each year group, please see our Calculation Progression Policy on the website.





# Assessment

Assessment of Mathematics takes place on a daily basis. This is through Assessment for Learning. Teachers use this assessment to effectively plan next steps, adapt lessons, deploy guided support and provide strong teaching and personalised learning for the children in their class. Any misconceptions are address through 1:1 or group conferencing with the teacher or teaching assistant.

Formal assessment takes place once every half term. The children are assessed against the National Curriculum on an on-going basis. These assessments give the children the opportunity to use and apply their knowledge, therefore demonstrating their understanding.

Moderation between staff members takes place on a regular basis within year groups and across age phases, to support the assessment of the children.



## Year 4 – DfE Multiplication tables check

*‘From the 2019/20 academic year onwards, schools in England will be required to administer an online multiplication tables check (MTC) to Year 4 pupils. A national voluntary pilot will take place between 10 June and 28 June 2019. Schools can use this to familiarise themselves with the check before it becomes statutory in June 2020. The National Curriculum specifies that pupils should be taught to recall the multiplication tables up to and including  $12 \times 12$  by the end of Year 4.’*

We will be taking part in this pilot next year to both assess and celebrate the multiplication knowledge that our children have. This knowledge is vital as they move into Upper Key Stage 2.

The children will have to answer 25 multiplication questions online and they have 6 seconds to answer each question with a 3 second gap between questions.

We will be supporting our children by ensuring that they have a deep understanding of each multiplication table and are able to rapidly recall these number facts.