

# **SUTTON CE VC PRIMARY SCHOOL**



## **MATHS POLICY**

### **FEBRUARY 2021**

## **Intent**

In Mathematics education at Sutton C of E Primary School we aim to sustain and develop in all children:

- a positive attitude towards the subject, in which they show confidence, understanding and enjoyment when using and applying mathematics;
- awareness of the relevance of mathematics in the real world concepts and skills
- an ability to solve problems, to reason, to think logically and to work systematically and accurately in a wide variety of situations
- an appreciation of mathematics as a means of communication through which they can ask questions, analyse information and ideas;
- the ability to work systematically where the task requires a careful accurate approach, as well as the ability to show imagination, initiative and flexibility when appropriate
- independence of thought and action as well as the ability to cooperate within a group;
- to solve problems, to effectively use reasoning language and explanation, to think logically and to work systematically and accurately;
- To develop a foundation of conceptual understanding leading to accurate choices in mental and written methods, calculators and other mathematical aids.
- learn from mistakes an ability to use and apply mathematics across the curriculum and in real life
- an understanding of mathematics through a process of enquiry and investigation

All teachers follow the aims of the National Curriculum:

Teachers should use every relevant subject to develop pupils' mathematical fluency. Confidence in numeracy and other mathematical skills is a precondition of success across the national curriculum.

At Sutton, breakdowns of objectives across each year group can be found in the Curriculum Guidance Documents on the Google Drive on the school system:

[https://drive.google.com/drive/folders/1EluQzZwF4pIC0HB\\_4XRi84LIAb66euF](https://drive.google.com/drive/folders/1EluQzZwF4pIC0HB_4XRi84LIAb66euF)

## **Implementation**

### **How is the maths teaching planned at Sutton?**

At Sutton Primary School, we are committed to providing a motivating, challenging and comprehensive maths curriculum that is accessible to all and links the use of mathematics across a range of subjects, adding meaning to the learning of maths. Our whole school approach to the teaching and learning of maths involves the following;

Our maths planning is largely based on Schemes of Learning from White Rose Maths and enhanced by a wide range of resources. This ensures a progressive and thorough curriculum in every year group. Teachers know which objectives must be taught and assessed in each year group and can follow progressive small steps to ensure pupils have a comprehensive understanding of maths.

Teachers are encouraged to plan in Powerpoint or Notebook software format, creating slides for each 'small step' with teaching points and activities to be completed. This format ensures evaluation of each lesson and subsequent lessons are adapted accordingly.

WRM (White Rose Maths) promotes kinaesthetic learning to ensure children acquire fluency of skills by introducing concepts in a practical/concrete way to progress to pictorial then abstract (C-P-A).

### **How is Maths taught at Sutton?**

Teachers deliver one curriculum for all, providing opportunities to stay together and to work through new content as a whole group. Teachers teach the whole class, allow pupils time to practise and bring the class back together to move on. Differentiated learning is provided through a selection of tasks to consolidate fluency, use skills to solve problems or use skills and reasoning skills to solve higher-level challenge problems. The independent tasks are split into 3 separate groups – Paddling, Snorkelling and Diving. Within planning, teachers indicate from which year group or objective these tasks coincide with.

Teachers should use their professional judgement to determine the activities, timing and organisation in each lesson in order to suit the teaching objectives and ensure children understand each small step.

For pupils who may struggle or possibly 'fall behind' with parts of the curriculum, in class support is provided on a daily basis. Additionally, intervention and consolidation is provided in the afternoon or lunchtime to ensure they are ready for the next lesson. For SEN pupils, a separate curriculum may be more appropriate.

Throughout KS1 and KS2, pupils have daily maths lessons. In Early Years, outdoor maths is advocated at every opportunity in order to give children a context to their learning and further deepen their understanding.

The teaching of mathematics at Sutton Primary School promotes the use of mathematical vocabulary through encouraging children to explain their thinking, strategies and mistakes during lessons to embed understanding and to support peer on peer learning as children learn well from peers. Opportunities for both written and verbal reasoning are taken at any point in order to encourage and deepen children's conceptual understanding further.

During lessons, we encourage teachers to live mark. After activities, the whole class discuss answers, strategies and mistakes. This provides children with immediate feedback and time to reflect on their learning. Mistakes are discussed and correction time given as part of a lesson either at the beginning or at the end.

A love of mathematics is promoted through different initiatives and the sharing of ideas. Maths Eyes is used regularly during lessons and throughout the school day to encourage the idea of mathematical concepts being embedded in our daily lives and surroundings. In addition, Sutton also makes use of interactive resources such as Times Table Rockstars and Mathletics to encourage fluency practice at home and in school.

Which skills are taught in which Year groups? By the end of each academic year, children in each year group should have developed the following skills:

## **Teaching and Learning**

### **EYFS**

The principle focus of mathematics teaching in the Early Years is to ensure pupils develop their knowledge of numbers, learning to count reliably with numbers from 1 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.

The EYFS curriculum also develops pupils understanding of shape, space and measures, teaching children to 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.

### **KS1**

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This involves working with numerals, words and the four operations, including with practical resources. At this stage, pupils develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching involves using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money. Pupils read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1. By the end of year 2, we aim for all

pupils to know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

## **KS2**

The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value, to develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers. At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value.

Teaching also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. Pupils use measuring instruments with increasing accuracy and make connections between measure and number. Pupils read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

By the end of year 4, we aim for all pupils to have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This develops the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio. At this stage, pupils develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems.

Teaching in geometry and measures consolidates and extends knowledge developed in number. Teaching ensures that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. Pupils should read, spell and pronounce mathematical vocabulary correctly.

By the end of year 6, we aim for all pupils to be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.

## **What does the maths learning environment look like at Sutton?**

Each classroom in Sutton Primary has a working wall display showing four clear sections that consist of Build It, Draw It, Write It and Say It. These are updated and used for each new concept covered in the children's learning and used as a tool to help build children's conceptual understanding. In addition to this, it also follows on

from the concept developed by White Rose and also our calculation policy of CPA (Concrete, Pictorial and Abstract).

### **Organisation, Planning and Resources.**

Each class has a general bank of resources for day-to-day maths lessons. EYFS classrooms have a wide range of counting equipment for children to explore and use in their learning and play.

Key stage 1 and key stage 2 classrooms each have their own supply of different mathematical resources to assist with pupil's learning such as base ten, multilink cubes, beadstrings, number lines, number fans, fraction walls, counters, measuring sticks and clocks.

Each classroom is equipped access to laptops and Ipads to enhance mathematical learning (Timestable Rockstars).

Online programmes (TTR, mathletics) are used to enhance learning and provide motivational tasks and homework activities.

### **Impact**

Our successful approach to the teaching and learning of maths, results in a fun and engaging curriculum that embeds understanding and knowledge through hands on, practical activities. Introductions to concepts using concrete materials and practical activities supports learning and attainment of different concepts. Children are encouraged to share their misconceptions and misunderstandings and become adept in using appropriate vocabulary and reasoning in doing so. The inclusion of open dialogue to discuss and explain mathematical thinking also strengthens the use and understanding of mathematical language along with ensuring children can explain, justify and evidence their thinking. Connecting maths across the curriculum highlights how maths relates to life.

We regularly use and highlight our use of maths in science investigations, collecting, recording and presenting data and geography field trips collecting and categorising resources from the world around us and taking measurements, e.g. Rivers KS2. Computing also highlights the real use of maths with statistics and data collection and analysis while measuring and position and direction are essential skills to programme. Special weeks timetabled throughout the year also celebrate mathematical thinking, such as Science Week.

### **Assessment**

Between one and two weeks prior to a change in concept, children complete an initial assessment (cold task) without any input in order to gauge their understanding before the learning begins. This then informs planning and any necessary intervention that may be needed. Once they have completed the unit of work, pupils undertake a similar assessment (hot task) to give an indication of progress and attainment.

Alongside these initial assessments, teachers also make use of the Multi – Tick assessment tool used on Pupil Asset. Children are assessed against the different

objectives at each stage of their learning in order to track, plan and respond to any gaps in knowledge or any objectives that may need to be revisited.

In Early Years, pupils are assessed against the Early Years Foundation Profile and are awarded levels of Emerging, Expected and Exceeding, matched to their achievement of the assessed statements.

Summative PUMA Assessments are used between Years 1 and 6. These allow teachers to reliably benchmark performance and track progress against national objectives in Maths. Alongside the PUMA Assessments (either completed online or as a paper resource) teachers and teaching assistants use the SHINE programme which analyses results and data taken from the tests. This information will then be used to develop 3 step solution interventions to target individuals or groups of children who may need targeted sessions to fill gaps in knowledge.

Following these assessments as well as Teacher Assessment through book scrutiny, moderation and tracking, teachers input 'Point in Time' data six times a year using Pupil Asset.

### **Performance Indicators**

Performance Indicators, which are the criteria for success of the school's mathematics policy at Sutton Primary School, are:

- Early Years Foundation Profile (Statutory Assessment)
- KS1 results (Statutory Assessment)
- KS2 results (Statutory Assessment)
- Pupil Asset data analysis (using end of term assessments)
- Pupil voice (enjoyment of maths and their ability to talk confidently about what they are doing)

### **Intervention**

Sutton Primary School offers a range of different mathematical interventions following teacher's planning, assessment and data entry. Success @ Arithmetic provides children in key stage 2 with a detailed intervention programme that revisits key calculation skills that helps to develop confidence in children's mathematical knowledge. This is achieved through a series of games and short 30 minute sessions, following the Success @ Arithmetic planning. In addition to this specific, targeted groups across the school also receive the necessary intervention needed as indicated by the SHINE programme.

### **Role of Subject Leader**

The Mathematics Subject Leader monitors standards of planning and teaching and carries out scrutinies of children's work and teachers' planning alongside the Senior Leadership Team. Support is given, if necessary, to ensure all staff are adhering to the agreed policy and planning format. Findings from monitoring are discussed with the Senior Leadership Team and shared with teaching staff as appropriate.

### **Parental Involvement.**

At Sutton Primary School we encourage parents to be involved by:

Inviting them into school to participate in year group maths workshops. To be informed about the up to date objectives, methods and strategies we use and to work with their child on a range of activities. Copies of the presentations and notes are sent home for parents who are unable to attend.

Inviting them to parents' evening each term to discuss the progress of their child.

Providing weekly homework to consolidate classroom learning to inform parents of their children's learning.

### **The Governing Body**

A governor responsible for mathematics is identified from the governing body. Governors are invited to attend any Maths workshops or training days. The subject leader and the nominated governor meet annually for a monitoring meeting.