



# MATHEMATICS POLICY

## Introduction

This policy outlines the teaching, organisation and management of the mathematics taught and learnt at Little Sutton Primary School.

The school's policy for mathematics is based on the 2014 National Curriculum. The policy has been drawn up as a result of staff consultation and has the full agreement of the Governing Body.

## Aims

'Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment.' Using the Programmes of Study from the 2014 National Curriculum it is our aim:

- To 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
- To **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- To **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
- To embed a **mastery approach to** learning by ensuring all children have a deep structural knowledge and the ability to make connections
- To encourage **personalisation** by ensuring all children work independently and collaboratively and be able to select appropriate materials for the task set, in a responsible manner.

## Organisation and planning

The National Curriculum for Maths is used by all teachers to ensure that all parts of the programme of study are taught. The programme of study is split into various strands which directly relate to maths at Key Stage 1 and Key Stage 2. Within each key stage, there is the flexibility to introduce content earlier or later than set out in the programme of study.

Children in the Foundation Stage work towards the Early Learning Goals by following Development Matters and work is planned with links to other curriculum areas so that the children have a range of learning experiences. Pupils have access to a variety of

play-based activities alongside more structured teaching and opportunities for self-initiated learning.

School written calculation policies for each of Addition, Subtraction, Multiplication and Division have been agreed by the LTE and Little Sutton staff to ensure continuity and progression throughout the school. Copies of these sheets are passed on to the new class teacher to help with this progression. **See Appendix 1 for LTE Calculation Policy.**

Year 1 and 2 teach as classes as mixed abilities. Mixed ability grouping is introduced in KS2 in smaller groups. Some of the groups have the support of a teaching assistant.

Teachers plan on a weekly basis taking into consideration the needs of the class/group following the National Curriculum statutory guidance. These are matched up to the weeks available at the beginning of each year by the maths team leader. Problem solving, reasoning activities and investigations are also planned into strands where applicable. Mathematical strands are taught at a deeper, broader level, with a greater focus on number sense and place value. Mental maths objectives have been taken out of the medium term planning and are together in a Maths Passport. Children work through this at their own pace through the school. **See Appendix 2 for Guidelines to Maths Passports.**

Planning is available on the planning drive and is used as an ongoing tool. On the planning/flipcharts the key vocabulary, curriculum links, depth of learning and, where applicable, resources are listed. Some lessons will involve cross-curricula planning.

## **Intent**

The daily mathematics lesson is appropriate for almost all pupils through a maths mastery approach. This includes focusing on the five big ideas of maths: teaching 'coherence', 'representation and structure', 'mathematical thinking', 'fluency' and 'variation'. This approach ensures pupils engage through the curriculum at the same pace. However, work is also appropriately varied to support the mathematical thinking of our pupils and the needs of individual pupils including Special Educational Needs and more able children (see relevant sections). Resources are therefore modified and used imaginatively to support learning, and Teaching Assistants play a valuable part in supporting the effective delivery of daily mathematics lessons for all pupils. Teachers and Teaching assistants facilitate the learning around the groups each week.

We also continually aim to improve the accuracy and speed of children's fact fluency skills according to their starting points. As a result, each child in school has a Maths passport. The targets are varied and represent the mental maths targets from the National Curriculum. Children are encouraged to know their targets.

Children in the Foundation Stage start with their own targets taken from Development Matters and during the course of the year start on the Maths passport. Daily maths sessions are planned to suit the purpose of the learning e.g. 20 pupils working on set objectives with the teacher and 10 pupils having an opportunity to practise and apply acquired skills through continuous provision. This will involve a TA intervening, as appropriate, to question, extend and deepen the children's thinking. Pupils will experience both Teacher and TA time during any one session, although the weighting may vary. Teaching styles may adapt over the course of the year to include

more whole-class teaching in preparation for Year 1, during the Summer term. Outdoor classroom learning - activities are also carefully planned and resourced to allow purposeful links to learning objectives across the mathematical curriculum.

Targets are set from this on a regular basis as those set are achieved and parents have a list of all the targets at home. Parents can thus keep track of children's progress. **See Appendix 2 for Guidelines to Maths Passports.**

## **Implementation**

The range of teaching styles will include; problem solving and investigating, practical work, consolidation and practice, mathematical discussions and fluency facts. Objectives are covered through a range of teaching and learning experiences which include individual, group and whole class work, mathematical discussion, practical work and games.

Each class has a daily lesson and these are planned using the Concrete, Pictorial and Abstract (CPA) approach of Maths Mastery. This gives the lesson pace, flow and allows more opportunities to teach creatively, allowing for effective feedback and assessment of mastery learning.

Each lesson generally consists of: fact fluency facts; an anchor task – a quick task to introduce the maths lesson; the new topic which includes the key mathematical concepts for the day's lesson; an exploration of the task by talking about the maths using key vocabulary; opportunities to clarify and develop the learning through small tasks - to help deepen pupils understanding of the concepts; and independent tasks - which enable pupils to practice their learning and a plenary. However, the actual structure of the lesson can be changed to suit the pace of the lesson e.g. the independent task may be left much later, if more time is required to focus on the discussion and understanding of the learning. Equally, if an anchor task is not relevant for one group, they may start on their activities straight away. In themed weeks such as Enterprise, Arts week or Health Week, lessons may be delivered in a different format.

Throughout the lesson, pupils have access to plenty of concrete materials, e.g. double sided counters, numicon and bead strings, so that they have opportunities to fully explore the practical elements of mathematics. The children are also encouraged to work independently, in accordance with the schools' vision of developing a growth mindset and are encouraged to use the working walls to allow them to see examples of how to approach a given problem/topic.

## **Creative curriculum opportunities**

As part of the creative curriculum, maths may be taught through themed weeks or a 'topic' on a termly basis e.g. Enterprise week. As many units as possible are also taught through other subjects e.g. Statistics through Science. Such approaches and activities provide an ideal opportunity for children to apply the knowledge and skills learnt in the daily Maths lesson to more open-ended investigative tasks thus developing their confidence and enjoyment of Maths.

## **SMSC (Spiritual, Moral, Social and Cultural)**

Mathematics contributes to our pupils SMSC development particularly through:

- Spiritual development: helping pupils obtain an insight into the infinite, and through explaining the underlying mathematical principles behind patterns.
- Moral development: helping pupils recognise how logical reasoning can be used to consider the consequences of particular decisions and choices and helping them learn the value of mathematical truth.
- Social development: through helping pupils work together productively on complex mathematical tasks and helping them see that the process is often exciting than simply trying to achieve an answer.
- Cultural development: through helping our pupils appreciate that mathematical thought contributes to the development of our culture and is becoming increasingly central to our highly technological future, and through recognising that mathematicians from many cultures have contributed to the development of modern day mathematics

## **Equal opportunities**

Little Sutton Primary School is committed to ensuring that it meets its specific duties in relation to current equality legalisation. As an inclusive school we recognise the need to tailor our approach to also support all pupils including those disadvantaged and on the Pupil Premium register. The Mathematics curriculum is accessible to all pupils regardless of race, gender, class, culture or disability. Pupils will have equal opportunity to develop their full potential in all areas of the mathematics curriculum. The contributions of all children will be respected and valued.

## **Gifted and Talented**

The approach of math mastery aims to stretch pupils including the more able pupils.

In the foundation stage, children are provided with differentiated tasks in each mathematical session. The more able are extended with targeted questioning and those which complete the early learning goals before the end of the year will be provided with specifically tailored activities.

Across the school, tasks are differentiated in order to challenge these pupils. When working with the whole class, teachers will also direct some questions towards the more able to maintain their involvement. In years 3 to 6, more able pupils will be taught in a group with children of similar ability in their year group. They are challenged daily with more extension activities provided in order to maintain their involvement.

The school also provides a number of in-house opportunities (such as Maths Challenges and Inter-house maths competitions) for all children to succeed. The school also has access to a number of 'Gifted and Talented' Mathematics competitions and workshops with our partners within the Learning Trust for Excellence (LTE). Enrichment is also provided through additional expertise from outside agencies to support the more able mathematicians.

## **SEND**

Teachers will aim to include all pupils fully in their daily mathematics lessons. During lessons we provide learning opportunities that enable all pupils to make progress. We do this through a focus on mastery approaches and responding to each child's different needs and using practical resources to support conceptual approaches.

Should progress fall significantly outside the expected range, the child may have special educational needs. Intervention through School Action will lead to the creation of an Individual Target Plan (ITP) for children with special educational needs. The ITP may include, as appropriate, specific targets relating to mathematics. (See SEN Policy).

Sometimes SEN pupils may receive additional one to one support to further help them access the mathematical work through Teaching Assistant support to help build the confidence of target children.

## **Computing**

Computing provides opportunities for pupils to develop logical thinking by using graphic packages and spreadsheets to solve numerical, algebraic, coding and graphic problems. Databases and spreadsheets and simple programming are also used to present and analyse data.

All classrooms have Interactive Whiteboards with a wide range of resources available for them on Activ Inspire. Each classroom has at least one computer, and access to Ipads. Maths Whizz (Years 4, 5 and 6), Times Table Rockstars, MyMaths, Planet Sherston Software and Education City are examples of some of the programs which can be used to practice skills and support the daily maths lesson as well as a wide range of activities on websites. **Appendix 3** details many of the websites that are also used to support teaching and learning. There is also timetabled access to the computer suite.

Ipads and Beebots are used to explore computer control leading to the computer language, logo. Foundation Stage also have access to remote control toys. Calculators are available in all classrooms but are used as an additional resource to aid number concepts.

## **Resources**

In Foundation Stage and Year 1, each child has a Maths Learning Journal a folder to record work. From Year 1 upwards, children record their work in their maths books, but also have a Learning Journal. This allows the children to choose the way they record results of investigations and when a particular activity needs plain paper, rather than squared. It also encourages conceptual understanding.

There are a number of published schemes which are used to support and enhance mathematical learning. These vary according to each year group and a variety of frameworks are used to stretch the more able pupils in each topic in their year group. In particular, the school uses a combination of materials from recommended publishers from NCETM including Shanghai Maths and White Rose materials. Other key resources include Pearson and Collins resources, Classroom Secrets, and Rising Stars to support mastery approaches to learning.

Materials considered necessary for everyday use are kept in the classroom, labelled and easily accessible to encourage independent use by children. Staff are encouraged to have maths boxes in their classrooms, which children can help themselves to if they need extra resources during lessons. Structured apparatus is shared by the whole school is centrally stored in labelled cupboards/shelves in the Mathematics Resources Room located near to the Library. Textbooks are stored in classrooms. Resources are monitored, updated and added to regularly (**see Appendix 4 on Foundation /KS1 and KS2 resources**).

Various recommended website addresses are constantly being issued to staff and are used for ideas, resources and games within lessons. A wide variety of problem solving games and word problem cards, alongside ICT programmes which provide our children with a rich, broad and balanced curriculum (**see Appendix 3 on Foundation /KS1 and KS2 resources**).

Children in the Foundation stage work towards the Early Learning Goals using a wide range of practical and computing resources but not a formal scheme.

### **Marking**

Work is marked according to our School marking policy and indicates whether or not the Learning Objective has been achieved. Close the Gap tasks are set for those children who have not achieved their targets and these are followed as soon as possible. See Marking Policy.

### **Homework**

Homework is set each week throughout school. Mental maths skills are set each week based on the maths passport and using Times Table Rockstars. Homework is varied between sheet and online work as appropriate to the teaching.

### **Impact - Monitoring and Assessment**

Children's progress with fluency maths is continually being monitored through the maths passport, Maths Whizz and Times Table Rock Stars.

Each term teachers in Year 1-6 assess the progress of children against their Insight targets using the LTE non-negotiables (objectives for each year group) and Rising Stars PUMA termly review tests. This further supports with planning and teaching of maths.

We also carry out end of year formal assessments in each year group:

- Years 2 and 6 are assessed by teacher assessments and SATS tests in May
- Years 3-5 use optional tests - Testbase - to support with end of Year Teacher Assessment judgements in the second half of the Summer term

Children in the Foundation Stage are baselined in September to provide an accurate starting point for each pupil. Pupils are then continually assessed throughout the year and progress towards the Early Learning Goals is monitored.

Results of key assessments from year groups in mark books and on Insight. These are analysed by the maths team, Phase Teams and Leadership Team each term. Results of assessments are used to inform planning, groupings and to identify underachievement so that targeted support can be put in place. Staff meet in Phase teams to moderate work. At the end of each academic year, a written report is given in maths and parents are informed of SATs results in Key Stage 2 and teacher assessments in Key Stage One. Termly progress against targets are discussed at Parents' Evening. Children's progress and targets are shared with the next teacher at the end of the year to ensure continuity and progression.

Maths teaching and progress is evaluated and monitored by the Maths Curriculum Team, Phase Teams and Leadership Team. This includes monitoring of planning, lesson observations, book scrutinies and Pupil conferencing.

### **Health and Safety**

Little Sutton Primary School is committed to ensuring pupils have a positive and enthusiastic attitude towards mathematical activities in a safe environment. All staff ensure that all equipment is safe for use and carefully stored in an appropriate place. Pupils are also encouraged to learn how to take responsibility for their own safe practice, i.e. to use mathematical apparatus safely, to work in a limited space and being aware of others.

### **Safeguarding**

Little Sutton Primary School is committed to safeguarding and promoting the wellbeing of all children and expects its staff and volunteers to do the same.

This policy was approved by the governing body on: 20/6/19

This policy will be reviewed in: September 2021