



LONG SUTTON COUNTY PRIMARY SCHOOL MATHEMATICS POLICY

Introduction

At Long Sutton County Primary School we believe 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. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

Our Aims

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.
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- 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.

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

Curriculum Entitlement

Mathematics is a core subject in the National Curriculum. At Long Sutton Primary the statutory objectives of the National Curriculum are supplemented by further additional resources or documents, e.g. the Calculation Progression and The White Rose Schemes of Learning, to achieve high standards of teaching and learning.

We carry out the curriculum planning in Maths in three phases (long-term, medium-term and short-term) using the materials provided by the National Curriculum and the White Rose. Our medium-term plans give details of the topics to be covered, and identify opportunities for cross curricular links with other subjects. These plans define what we teach and ensure an appropriate balance

and distribution of work across each term. The Senior Leadership Team and Mathematics Subject Leader are responsible for reviewing these plans

Class Teachers also complete short-term plans for the teaching of Mathematics, either by creating written plans or annotating the White Rose Schemes of Learning. This lists the specific learning objectives for each lesson, including specific mental maths activities, and gives details of how the lessons are to be taught. It also includes details of what each group of children will be learning to ensure adequate differentiation is in place, either to support children or deepen and apply their understanding. The class teacher ensures that planning and resources are added to the **T:** on the school's network, where it can be monitored and scrutinised by the Mathematics Subject Leader on a termly basis. Annotated plans are kept in the planning folders to ensure Assessment for Learning (AfL) is being used.

Spoken language

The national curriculum for mathematics reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically, particularly in the development of reasoning skills. The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof. They must be assisted in making their thinking clear to themselves, as well as others, and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions. Key vocabulary should be taught and left on display to support children in lessons and during intervention activities.

Foundation Stage

We teach Mathematics in the Foundation Stage as an integral part of the school's work. The format for the daily lesson differs from the rest of the school in that objectives are covered throughout the day in short focused class sessions and followed up in small group work. As our Foundation Stage classes are part of the Foundation Stage of the National Curriculum, we relate the Mathematics aspects of the children's work to the objectives set out in the Early Learning Goals which underpin the curriculum planning for children aged 3-5. We ensure that there are always independent activities available to allow children to practise their maths skills.

Key Stage One – Years One and Two

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 should involve working with numerals, words and the four operations, beginning with practical resources [for example, concrete objects (Numicon) and measuring tools].

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of year 2, pupils should 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.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Lower Key Stage Two – Years Three and Four

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. This should ensure that pupils 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 should 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. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

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

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Upper Key Stage Two – years five and six

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 should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

At this stage, pupils should 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 should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

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

Pupils should read, spell and pronounce mathematical vocabulary correctly.

Teaching and Learning

At Long Sutton Primary School we use a variety of teaching and learning styles in Mathematics lessons, as recommended by the National Curriculum. Our principal aim is to develop children's knowledge, skills and understanding in Mathematics. We do this through a daily Mathematics lesson where a range of teaching strategies may be used such as demonstration, modelling, explanation, questioning, guided group work and discussion. The children will also have the opportunity in Mathematics lessons to use a range of resources, which are always accessible to the children, to support their learning. Teachers will also make links with other subjects where possible, and children will have opportunities to use their Mathematics skills across the curriculum. Thus, putting the skills learnt into a different context and allowing a greater purpose to the children's learning.

Special Educational Needs

All children are entitled to access the Mathematics curriculum at a level appropriate to their needs. Thus, differentiated work is maintained to allow for all children to work at their appropriate level. If a child has a special need, our school does all it can to meet their individual needs. We comply with the requirements set out in the SEN Code of Practice in providing for children with special needs.

Resources

There is a range of resources to support the teaching of Mathematics across the school. Every class has a maths dictionary (to reinforce the need for using the correct mathematical vocabulary) as well as a selection of appropriate practical resources that support the teaching of the calculation policy. These include Numicon, Base Ten, straws, bead strings, place value counters, etc. There are also other resources available for specific topics, such as 2D and 3D shapes, clocks, measuring equipment, etc. Class teachers also have access to a wide range of maths resources and games on the T:drive, on iPads and online.

Assessment and Recording

Teachers assess children's work in Mathematics in different ways and at different times of the year. The formative assessments that teachers make as part of every lesson help teachers to adjust their daily plans and match these assessment closely to the teaching objectives. All teachers are expected to annotate their Mathematics plans, explaining how well the children met the learning objective and success criteria, and any changes which will be made to subsequent lessons as part of the Assessment for Learning process.

Teachers also conduct assessments on the children during the academic year. These currently take place as part of the school's formal Assessment Weeks. During assessment weeks, children in FS, KS1 and KS2 are assessed by their teacher using their class work and test results (if applicable) to support their judgements. Children are only judged as having achieved an objective if they can work independently to apply the skill or knowledge.

As we move towards 'Assessing without levels', teachers will indicate how children are achieving against age related expectations in Mathematics. It is then expected that teachers will highlight where children's gaps in learning are, and adapt their teaching to sufficiently meet them. All of this data is entered onto Integris to be analysed by the Mathematics Subject Leader and Senior Leadership Team. Once data has been collected on Integris, staff will then be invited to attend in school moderation with an external consultant to ensure accuracy of judgements and consider next steps in the children's learning.

In the Foundation Stage, the Foundation Stage Profile, and annotations on planning are used to assess the children and inform future planning.

In May/June, children in Y2 & Y6 also undertake statutory end of Key Stage SATs. The outcomes of these assessments will be recorded on Integris, and will be reported to parents at the end of the academic year. End of Key Stage Assessments are analysed by the SLT and fed into the school Self Evaluation Form (SEF), development plan and performance management arrangements.

Monitoring

Monitoring of the standards of the children's work and the quality of teaching in Mathematics is the responsibility of the Senior Leadership Team and Mathematics Subject Leader. The work of the Subject Leader also involves supporting colleagues in the teaching of Mathematics, being informed about the current developments in the subject, and providing a strategic lead and direction for the subject in the school.

Review

The Headteacher, Subject Leader and Governing Body will review this policy every two years in consultation with staff.

Written – May 2017

Review – May 2019

Katie Law Maths Subject Leader