



Staplehurst School

Mathematics Policy

Policy updated by subject leader
Policy approved by Headteacher
Policy to be next reviewed

September 2018
October 2018
Term 3 2021

Mathematics Policy

Policy to be read in conjunction with other policies; particularly the Special Educational Needs & Disability Policy and the Early Years Foundation Stage Policy.

1. Purpose of study

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.

'Mathematics programmes of study: key stages 1 and 2 National curriculum in England'

2. Aims

Staplehurst School 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.

3. Organisation and planning

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.

In Early Years, all children have mathematical experiences everyday but initially not in the context of a formal lesson. They are provided with learning experiences to help them achieve the Early Learning Goals pertaining to Number and to Shape, Space and Measure.

From Year 1, all children have a dedicated maths lesson every day. These are an hour long in Year 2 and Key Stage 2. In Year 1 the length of the lesson varies according to the age of the children and the type of activity involved. Some mathematical activities will regularly take place outside of the formal lesson such as times tables practice or testing. There will be opportunities for paired work/ group work/ individual work as well as whole class teaching.

Since September 2018, long term and medium term planning has been based on the National Curriculum for Mathematics 2014 and the White Rose mathematics framework. Teachers adapt their plans to take account of assessment information for particular groups of children. Short term planning is derived from the medium term plans.

Planning is for the benefit of the teacher, to ensure adequate coverage of all aspects of the curriculum and to ensure teacher readiness for the maths lesson. It is imperative that planning should nevertheless include questioning for deepening and reasoning.

We recognise the importance of establishing a secure foundation in mental calculation and recall of number facts before standard written methods are introduced. Our calculation policy shows the methods to be taught in each year group for each of the 4 number operations. All work in maths exercise books is to be set out in line with the guidance in the Presentation Policy.

Every opportunity should be given to children to apply their mathematical knowledge in other subjects e.g. graphs in science, measuring in DT.

4. Teaching styles and strategies

We aim to provide all children with high quality direct teaching, which is interactive and lively. Our teaching style and lesson structure provide the opportunity for children to consolidate previous work, use and apply their learning, ask questions, reflect on their own learning and make links with other work. We operate controlled differentiation with all pupils engaged in mathematics relating to a common theme but at different levels according to prior attainment. We recognise the importance of building confidence in mathematics and ensure we get children to focus on what they have learnt rather than the errors made.

In class, use should be made of the interactive whiteboard, pupil-held whiteboards and the visualiser on a regular basis, to enhance the interactive elements of the lesson for the children. All units of work should be planned to incorporate a CPA (concrete, pictorial and abstract) approach to teaching and learning.

Staplehurst School is heavily committed to the use of manipulatives in all year groups, to aid with the development of concepts. In Early Years children become familiar with Numicon, which continues as a core resource in Key Stage 1. All children should have access to manipulatives to develop their concepts; we encourage the more able children to continue to use manipulatives rather than moving straight onto abstract representations of number.

Teachers should bear in mind the sequence:

Concrete real object-----symbolic object-----image of object----symbolic image---- number sentence

as the sequence that the development of number concepts will follow. It is therefore important to have to hand a wide range of resources such as number lines and counting beads to provide concrete support. Each class should ensure they have a good supply of those resources and that they are used regularly. Resources used less regularly are stored in the maths cupboard for communal use. All resources should be put away correctly, ready for use by the next person.

Pupils who are assessed as falling just below/ or at risk of not achieving the expected standards, receive targeted support in Maths Boost sessions four times per week. All pupils from Years 1-6 receive an additional daily Number Fluency session (KS1 - 20 minutes , 4 times per week and KS2 - 30 minutes , four times per week) in order to improve basic numbers skills. Additionally, pupils work independently on their times table skills using an on-line programme.

5. Marking

All staff follow the guidance in the Marking Policy and adhere to the 5 non-negotiables of marking.

6. Assessment and record keeping

Teachers are expected to make regular assessments of each child's progress and to record those systematically, using Target Tracker. Children are encouraged to develop self-assessment skills as they judge their performance against their targets.

We recognise that Assessment for Learning (A4L) is at the heart of promoting learning and raising standards of attainment. It is a continuous process, allowing the teacher to match the correct level of work to the current concept development of the child. A4L will involve using information gathered from talking to children, observing and marking their work, watching their approach to practical tasks, noting their answers to questions etc. A4L will be used to alter the pace/ content/ level of a lesson as the teacher takes continuous feedback from the class on the appropriateness of the planned work. A4L takes precedence over prepared plans. When a teacher finds their planning is at the incorrect level for the class or that more time is needed on a topic than they had previously planned, plans **must** be changed to accommodate the A4L findings.

We encourage the establishment of maths ability-based groups within the class but recognise the need for these groupings to respond to A4L. We encourage teachers to assess children for each new topic before formally starting the topic and using the results of that assessment as the basis of the groups. This arrangement takes into account the very different ability of some children, depending on the maths topic being taught. It also allows children to be taught more regularly at the correct level of challenge as established by their prior knowledge. This pre-teaching assessment may be oral or written.

Results are used to assess progress against school and national targets. Gap analysis of test results is used to determine areas which need further teaching and to identify children needing extra interventions.

7. Maths and Inclusion

We teach mathematics to all children within the daily mathematics lesson, whatever their ability and individual needs, as it forms part of our policy to provide a broad and balanced curriculum to all children. We strive to meet the needs of SEN children and those with disabilities. This will often involve the provision of a differentiated objective and additional manipulatives.

Academically More Able children are given the opportunity to work with children from other schools by taking part in local competitions.

When progress falls significantly outside the expected range, the pupil may have special educational needs. Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, and differentiation – so that we can take some additional or different action to enable the child to learn more effectively. Pupils with special educational needs, receive targeted support in the afternoons. Assessment against the National Curriculum allows us to consider each child's attainment and progress against expected levels. This ensures that our teaching is matched to the child's needs.

8. Homework and Involving parents

Mathematics home work is given weekly in Years 2-6 as it can be a valuable tool in promoting children's learning and allowing the parents/ carers to be regularly involved in the child's mathematical development. It should not take the place of teaching a particular topic but should be used to consolidate work already covered at school e.g. the learning of a set of multiplication tables for homework should be preceded by coverage in class, where patterns and tips for remembering answers have been explored. The home learning should reinforce learning at school, not replace it.

Particular care needs to be taken to ensure methods used at home reflect those taught in school. This may entail directing parents to the calculation policy for parents, workshops for parents to explain a particular procedure or worked examples being given at the beginning of the work.

Because children differ greatly in mathematical attainment, homework needs to be chosen carefully to stretch all learners, which may well mean differentiated work. Practical activities which engage the child with everyday maths in their home environment are to be preferred to completion of a worksheet e.g. finding the capacity of various bowls from the cupboard, using Mum's measuring jug, is more engaging and realistic than filling in a sheet changing litres to ml. Tasks which are varied and interesting will motivate the children, stimulate their learning and foster a range of learning skills.

As mathematics exercise books are needed for the daily maths lesson, homework is completed in a separate file. Children should receive punctual feedback on all homework.

The school uses a number of online learning platforms/applications (e.g. MyMaths, Times Table Rock Stars) to support the teaching and learning of maths in school and homework tasks.

9. Monitoring and evaluation

The maths leader undertakes a work scrutiny in each class at various points throughout the year, providing detailed feedback to each teacher with both points to celebrate and areas for improvement.

Regular CPD and INSET on maths is provided both in-house and with external courses.

Target Tracker, PiXL, SATs and teacher assessment provide a range of data which are closely monitored to assess progress in different classes and also to evaluate our performance against national standards.

Interventions are evaluated with entry and exit data being compared to ensure children are making expected progress and that there is value for money.