



## **Mathematics Curriculum Statement**

At St Catherine's Primary School our aims are to fulfil the requirements of the National Curriculum for Mathematics.

Our vision for Maths is that children believe in the beauty of Maths and that they ALL can achieve through fluency and mastering one small-step at a time. They will make connections between different mathematical concepts and use talk to justify and reason about different concepts. Our children will see the relevance of maths in relation to other subjects and to the life skill they will need when leaving St Catherine's.

### **Intent**

At St Catherine's pupils are taught to-

- become fluent in the fundamentals of Mathematics
- reason mathematically
- solve problems by applying their mathematics

*(National Curriculum 2014)*

At St Catherine's, these skills are embedded within Maths lessons and developed consistently over time. We are committed to ensuring that children are able to recognise the importance of Maths in the wider world and that they are also able to use their mathematical skills and knowledge confidently in their lives in a range of different contexts.

We want all children to enjoy Mathematics and to experience success in the subject, with the ability to reason mathematically. We are committed to developing children's curiosity about the subject, as well as an appreciation of the beauty and power of Mathematics.

### **Implementation**

The content and principles underpinning the 2014 Mathematics curriculum, as well as the 2020 Ready to Progress document and the Maths curriculum at St Catherine's reflect those found in high-performing education systems internationally, particularly those of east and south-east Asian countries such as Singapore, Japan, South Korea and China. These principles and features characterise this approach and convey how our curriculum is implemented:

- Teachers reinforce an expectation that all children are capable of achieving high standards in Mathematics.
- The large majority of children progress through the curriculum content at the same pace; Significant time is spent developing deep knowledge of the key ideas that are needed to underpin future learning. This ensures that all can master concepts before moving to the next part of the curriculum sequence, allowing no pupil to be left behind.
- The structure and connections within the mathematics are emphasised, so that pupils develop deep learning that can be sustained.



- Lesson design identifies the new mathematics that is to be taught, the key points, the difficult points and a carefully sequenced journey through the learning. In a typical lesson pupils sit facing the teacher and the teacher leads back and forth interaction, including questioning, short tasks, explanation, demonstration, and discussion.
- Practice and consolidation play a central role. Carefully designed variation within this builds fluency and understanding of underlying mathematical concepts.
- Teachers use precise questioning in class to test conceptual and procedural knowledge and assess children regularly to identify those requiring intervention, so that all children keep up.
- Children are sat in mixed ability groups and talk partners are used to develop and enforce understanding and reasoning.
- Children's explanations and their proficiency in articulating mathematical reasoning, with the precise use of mathematical vocabulary, are supported through the use of stem sentences and generalisations provided by the teacher. These help the children to make connections and expose the structure of the maths.

Stem sentence example:

*The greater the numerator is in a set of fractions with the same denominator, the \_\_\_\_\_ the fraction.*

*The higher the denominator of a unit fraction, the \_\_\_\_\_ the fraction.*

Generalisation example:

*The length of one side of the square can be found by dividing its perimeter by 4.*

- Key facts, such as multiplication tables and addition facts within 10, are learnt to automaticity to avoid cognitive overload in the working memory and enable pupils to focus on new concepts.

To ensure whole consistency and progression, the school uses the NCETM curriculum prioritisation materials. The NCETM materials provide a cumulative curriculum, so that once a topic is covered, it is met many times again in other contexts. For example, place value is revisited in addition and subtraction and multiplication and division. The curriculum recognises the importance of children's conceptual understanding of number. It is therefore designed to ensure that time is invested in reinforcing this to build competency.

Lessons are planned to provide plenty of opportunities to build reasoning and problem solving elements into the curriculum. When introduced to a new concept, children have the opportunity to use concrete objects and manipulatives to help them understand what they are doing. Alongside this, children are encouraged to use pictorial representations. These representations can then be used to help reason and solve problems. Both concrete and pictorial representations support children's understanding of abstract methods.

Mathematical topics are taught in blocks, to enable the achievement of 'mastery' over time. These teaching blocks are broken down into smaller steps, to help children



understand concepts better. This approach means that children do not cover too many concepts at once which can lead to cognitive overload.

Each lesson phase provides the means for children to achieve greater depth, with children who are quick to grasp new content, being offered rich and sophisticated problems, within the lesson as appropriate.

In addition to this, children in EYFS and KS1 complete the Mastering Number programme which helps to enforce 'the power of ten' where children are taught different representations to help them bridge ten confidently and fluently in addition and subtraction.

St Catherine's staff have completed the NCETM's introduction to mastery programme and are currently partaking in the developing mastery programme. The next stage will be the embedding mastery programme.

### **Impact**

Formulative assessments are completed throughout lessons and children who need extra support with a particular concept complete on the day or next day interventions.

Summative assessment is completed at the end of each unit and termly assessments are completed to measure where pupils are against age-related expectations, children who are identified as not making progress take part in our tutor intervention programme.

The expected impact of our maths scheme of work is that the children will:

- become fluent in the fundamentals of mathematics
- have a range of strategies to solve mathematical questions and problems
- 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
- solve problems by applying their mathematics to a variety of routine and nonroutine problems with increasing sophistication
- be able to break down problems into a series of simpler steps and persevere in seeking solutions.
- make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems.
- meet the end of key stage expectations outlined in the National curriculum for Maths.



### Useful links

- [Curriculum prioritisation in primary maths | NCETM](#)
- [Primary Calculation Guidance | NCETM](#)
- [Exemplification of ready-to-progress criteria | NCETM](#)
- [National Centre for Excellence in the Teaching of Mathematics \(ncetm.org.uk\)](#)
- [Progression Maps for Key Stages 1 and 2 | NCETM](#)