

Draft Mathematics Policy

The Department for Education states in the new national curriculum for September 2014 that:

Every state-funded school must offer a curriculum which is balanced and broadly based and which:

- promotes the spiritual, moral, cultural, mental and physical development of pupils at the school and of society, and
- prepares pupils at the school for the opportunities, responsibilities and experiences of later life.

Introduction:

This policy has been developed in order to ensure that the teaching of mathematics contributes to the school fulfilling its mission statement:

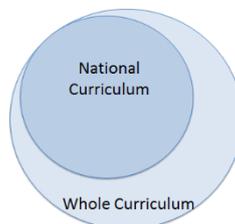
Inspiring Learning, Nurturing Aspiration

The policy is intrinsically linked with and is informed by other school policies, including:

- Calculation Policy
- Teaching and Learning Policy
- Marking and Feedback Policy
- Early Years Policy
- Special Educational Needs Policy
- Single Equalities Policy

General approach:

As part of our strategy to raise pupil attainment, St Swithun's school uses 'The national curriculum in England: mathematics programmes of study: key stages 1 and 2' (2013) as a basis for planning teaching and to fulfil the government's statutory requirements; this ensures continuity and progression throughout the school. Our school embraces the statement: "The school curriculum comprises all learning and other experiences that each school plans for its pupils. The national curriculum forms one part of the school curriculum." (2.2, National Curriculum 2013, Key Stages 1-4)



Assessment for Learning, a focus on investigative and problem solving approaches, plus the development of mathematical thinking are at the heart of our school's approach. A rigorous and planned commitment to the development of teacher and teaching assistants' subject knowledge complements and strengthens this.

Aims:

Our school believes that every child is entitled to a high quality mathematics education, which will provide a foundation for them understanding the world. As a



result, they will have an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject. It is our belief that our pupils should:

- **become fluent in the fundamentals of mathematics**, so that they:
 - have a well-developed sense of number values
 - know by heart key number facts, e.g. times-tables and related division facts, number bonds – in line with the latest programmes of study
 - apply knowledge of the above to work out connected facts
- **reason mathematically**, so that they:
 - are able to follow a line of enquiry
 - provide generalisations and proof of findings around their investigations
 - are able to justify their thinking, e.g. as to why a particular calculation strategy is the most efficient
- **solve problems by applying their understanding of mathematics**, so that they:
 - encounter a variety of both routine and non-routine problems
 - are able to select specific maths skills and/or operations
 - persevere with a line of enquiry, breaking down increasingly complex problems into a series of smaller steps

Coverage:

In order that our children get a broad and balanced mathematical curriculum, we will ensure that the following domains are covered each year:

- Number:
 - number and place value
 - addition and subtraction
 - multiplication and division
 - fractions, including decimals and percentages
- Measurement:
- Geometry
 - properties of shape
 - position and direction
- Statistics
- Ratio and proportion (Year 6)
- Algebra (Year 6, although the foundations will be taught from Key Stage 1)

Our school is committed to fostering positive attitudes towards the subject, whilst ensuring that all pupils develop deep conceptual understanding (in part, through exposure to a range of models and images) and mastery across the domains listed above, and in line with their age group. Teachers will actively diagnose and address perceived 'gaps' in conceptual understanding. How pupil learning is then developed as a result will be monitored. In line with the new curriculum's focus on children making connections, our school will provide regular and stimulating cross curricular enrichment opportunities.

Curriculum

At St Swithun's we are moving towards adopting a mastery approach in the learning and teaching of mathematics. We have adopted the Inspire Maths programme, which is the UK edition of 'My Pals are Here!', the internationally renowned approach used to teach maths in Singapore, which was influenced by the Cockcroft report of 1982. Singapore's Ministry of Education drew on leading international research on



effective teaching and learning of maths to meet the challenge of raising primary mathematics attainment within Singapore schools. This programme's success is reflected in the high levels of mathematics attainment by Singapore pupils, who are consistently ranked among the very top international comparison studies such as PISA and TIMSS and this is the success we want for the children at St Swithun's.

Inspire Maths provides a highly scaffolded learning framework with problem solving at its heart. It is built on focused, coherent and cumulative spiral curriculum that continuously builds and consolidates knowledge to reach deep understanding. The programme encourages extensive practice to develop fluency and mastery, so that every child – across all abilities – can succeed at mathematics.

Inspire maths emphasises the development of critical thinking and problem solving skills which can help children make connections to develop deeper understanding. The powerful concrete-pictorial-abstract (CPA) approach, including the bar model method, is central to this.

Teaching and Learning:

The CPA approach used is powerful because from very early on in their school life, children are expected to use and understand numbers, which are abstract concepts. Many children struggle with this or adults assume that this understanding is in place before it is truly embedded, so their first experiences of mathematics can be confusing, leaving them without a sufficiently solid foundation to build on for later learning.

The CPA approach helps children achieve secure number sense – that is, a sense of what numbers really represent and how to use them mathematically. This is done through a series of carefully structured representations – first using physical objects (concrete), then diagrams or pictures (pictorial), and ultimately using representations such as numerals (abstract).

In order for the children to develop their learning, each classroom will have a maths working wall. Unlike traditional wall displays, working walls are interactive and can be used to record, visualise and assist learning. They allow children to see written methods for calculations, while absorbing the mathematical language used in a particular area of the subject.

Classes are taught together, with all children progressing through curriculum content at broadly the same pace, although support/intervention is used to move groups of children on.

Teachers use a range of strategies for subtle differentiation without putting a ceiling on a child's learning, such as resources, questioning and manipulatives. Children who grasp concepts more quickly will be challenged through the use of tasks with require application of learned skills, offering depth and breadth rather than acceleration through content. Children who are slower to grasp concepts will be further supported through adult intervention.

Assessment:

Attainment is measured through:

- IM assessments at the end of the autumn term and at the end of the summer term



- Statutory tests in Year 2 and Year 6
- Cold assessment at the beginning of a unit
- Hot assessment (in the IM assessment books) at the end of a unit
- Daily AfL within the classroom teaching

Targeted intervention is focused on ensuring that identified children are helped to 'keep up' across three tiers:

- previous lower attainers revisiting concepts and/or being provided with prior learning in advance of lessons
- further practise and consolidation
- further challenge or greater depth for children who are quick to grasp the concept.

Organisation:

In order to respond to latest changes in the mathematical landscape, including the latest inspection framework, we will ensure that:

- Maths provision and impact on learners is evaluated and reviewed regularly via the School Improvement Plan and aligned maths action plan. As part of this process, the maths subject-leader (alongside other senior leaders) will triangulate evidence from a range of monitoring activities (e.g. planning/book scrutinies, learning walks/observations and pupil voice) to determine next stages of development.
- CPD needs of our staff, including the maths subject-leader and teaching assistants, are regularly reviewed and planned as appropriate. The expectation is that staff attending CPD will be given planned opportunities to cascade key messages, or share through lesson study.