Stanton Cross Primary School

Maths Policy

September 2023

Introduction

This policy outlines what we are aiming to achieve in respect of pupils' mathematical education. It is continuously being updated to reflect the school's development within the subject. The mathematics taught and the methods used reflect the recommendations outlined in the DfE guidance contained in the documents:

1. Early Years Foundation Stage Guidance
2. National Curriculum 2014

This policy should be read in conjunction with Northampton Academy Trust Mathematics Aims and Principles document dated February 2020.

Intent

The National Curriculum (2014) 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 nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Using the Programmes of Study from the National Curriculum, it is our aim that all children will understand that they can achieve in mathematics. Our school views all children as mathematicians and encourages pupils to have a positive attitude towards the learning of mathematics and an enthusiasm for the subject. We aim to create a stimulating, broad and exciting mathematical environment so that all children will access to the maths curriculum and resources, regardless of ethnicity, gender, economic background, class or ability.

The Role of the Mathematics Subject Leader

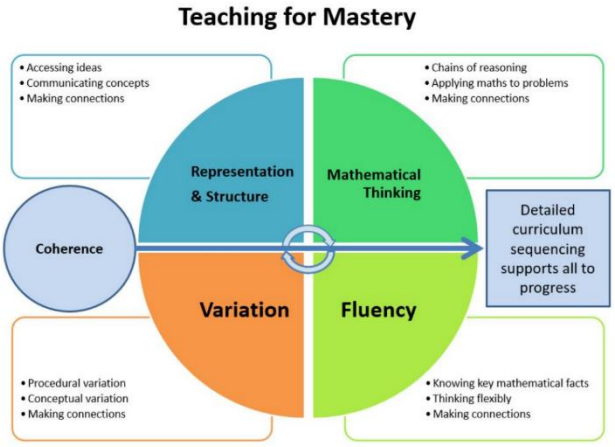
• To provide teachers with support in the teaching of mathematics by ensuring they understand the requirements of the National Curriculum.
• To monitor and evaluate planning, teaching and learning in mathematics across the school.
• To develop own practice by undertaking relevant CPD opportunities and setting high standards in their own teaching.
• To provide training for staff members that help raise standards in the teaching of mathematics.
• To keep up-to-date with developments in mathematics by independent reading of scholarly articles and engagement in educational research.
• To regularly audit resources in the school so that a high standard is maintained.

Implementation

Northampton Primary Academy Trust and Stanton Cross Primary School use a mastery approach to delivering mathematics. This is based on research shared by The National Centre for the Excellence in the Teaching of Mathematics (The NCETM), Guskey (2009) and Skemp (1976).

As stated in the Aims and Principles, key elements of effective teaching have been identified. These are based on the NCETM's Big Ideas as shown below:

Key Elements for Effective Teaching					
Vocabulary and Discussion	Challenge for All	Use of Concrete, Pictorial and Abstract Representations	Variation	Reasoning and Problem Solving	Fluency and Arithmetic



Coherence:	Variation:	Representation and Structure:	Mathematical Thinking:	Fluency:
Ensures concepts are planned out through small steps that link every question with the key concept for that lesson.	Procedural variation ensure questions are carefully thought out and conceptual variation is used to represent the concept being taught in more than one way.	Concepts are explored using a concrete, pictorial and abstract approach (CPA). This exposes the mathematical relationships and structures being taught.	Supports the children's ability to find relationships between the mathematics they learn. They are encouraged to use their reasoning skills to look for patterns and connections.	Ensures a focus on number facts including number bonds, partitioning and times table facts so that they can apply these skills flexibly to their problem solving.

Impact

Our Maths curriculum will enable children to make progress and achieve in-line with national standards and our school values (DARE). Our school values every child and the norms within our mathematics lessons are:

1. Everyone can learn mathematics to the highest levels.
2. If you 'can't do it', you 'can't do it yet'.
3. Mistakes are valuable.
4. Questions are important.
5. Mathematics is about creativity and problem solving.
6. Mathematics is about making connections and communicating what we think.
7. Depth is much more important than speed.
8. Maths lessons are about learning, not performing.

Maths in Early Years

"Small Numbers, Big Ideas"

"Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to ten, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes."

EYFS Programme of Study – Statutory Framework for EYFS 2021

At Stanton Cross Primary School, Reception classes follow the Statutory Framework for the Early Years Foundation Stage alongside the NPAT Early Years Curriculum Framework. White Rose and Number Sense Maths are used to support planning. There is an emphasis on manipulating concrete equipment and real-life objects, mark making, imaginative and enjoyment in activities, often of a practical nature, to draw out mathematical learning and support efficient thinking. In the foundation stage, mathematical development is assessed with two Early Learning Goals:

- Number
- Numerical Patterns

Teaching is provided through whole class inputs or through facilitation of discussion within the continuous provision. Within the environment there is a dedicated maths area and children are always able to choose to work independently. The staff provide a wide range of opportunities for children to develop independence, problem solving and creativity and perseverance. Tasks could include:

- Observation of number and pattern in the environment and daily routines
- Board games
- Large and small construction
- Stories, songs, rhymes and finger games
- Sand and water
- 2D and 3D work with a range of materials
- Imaginative role play e.g. kitchens, vets, hospitals, shops etc.
- Outdoor play and 'playground' games
- Bikes and tricycles on tracks

Assessment in Early Years

In the Foundation Stage children are assessed using short observational notes and formative assessment grids. At the start of the year, a baseline assessment is compiled against the Early Learning Goals. At the end of the year, the Early Learning Goals achieved are reported to parents and used in school to support the transition into Year 1.

Maths in Key Stage 1

Our teaching and learning strategy is built upon the Early Years Foundation Stage guidance and follows The National Curriculum. Children are taught in their classes with a focus on 'Quality First Teaching'. Teachers deliver lessons through a variety of lesson structures to embed new strategies or concepts. Mistakes are embraced in the classroom to allow for collaboration and discussion to understand why and how child can edit their work and understand their next steps.

The teaching of mathematics in Key Stage One is based on six key principles:

1. Teachers believe in the importance of mathematics and that the vast majority of children can succeed in learning mathematics in line with national expectations.
2. In most year groups, the whole class is taught mathematics together. The learning needs of individuals are addressed through careful scaffolding, questioning and appropriate rapid intervention where necessary, to provide the appropriate support and challenge. It is written into our action plan to adopt this approach across the whole school over the next few years.
3. The reasoning behind a mathematical process is emphasised. Teacher/pupil interaction explores how answers were obtained as well as why the method worked and what might be the most efficient strategy.
4. Precise mathematical language, often given as stem sentences, is used by teachers so that mathematical ideas are conveyed with clarity and precision. We value 'mathematical talk' and children ger regular opportunities to talk about and evaluate their mathematics during lessons.
5. Conceptual variation and procedural variation are used extensively throughout teaching. This helps to present the mathematics in a variety of ways that promote deep, sustainable learning.
6. Sufficient time is spent on key concepts to ensure learning is well developed and deeply embedded before moving on. Links between concepts are explicit and lessons build on previous knowledge.

Features of Lesson Design

1. Teachers will complete a class input followed by time for independent practice. During this time it may be appropriate for the teacher or support staff to deliver a rapid intervention. Independent practice includes reasoning, problem solving and higher order thinking activities.
2. Lessons are sharply focused on the new objective introduced at a time.
3. Difficult points and potential misconceptions are identified in advance and strategies to address them planned. Key questions are planned, to challenge thinking and develop learning for all pupils.
4. The use of high-quality materials and tasks to support learning and provide access to the mathematics is integrated into lessons.
5. There is regular interchange between concrete/contextual ideas and their abstract/symbolic representation.
6. Making comparisons is an important form of developing deep knowledge. The questions "What's the same, what's different?" are often used to draw attention to essential features of concepts. E.g. What makes a triangle a triangle? What it isn't..., What it is...? (A close representation will be shared to check for misconceptions)
7. Teacher-led discussion is interspersed with short tasks involving pupil-to-pupil/group discussion.
8. Formative assessment is carried out throughout the lesson; the teacher regularly checks pupils' knowledge and understanding and adjusts the lesson accordingly.

Planning

Teachers plan in accordance with the National Curriculum. Within Years 1 and 2 White Rose resources are used, which form a coherent programme of high-quality materials and exercises. This will be extended into Key Stage 2 as Stanton Cross Primary School grows to ensure cohesion and consistency.

Over the course of the academic year, all units of the National Curriculum are covered which is mapped out on a long-term map. Short term planning is completed on a weekly basis where teachers also plan activities and additional tasks, which offer support and scaffolds where required and provide further challenge for children who are able to progress further in their learning.

In Key Stage 1, children record their work within their maths or using resources provided by White Rose. Work will also be completed on individual white boards within lessons to allow the teacher to observe responses when in a whole class input.

Assessment in Key Stage 1

Assessment for learning is completed throughout every maths lesson and planning is adapted accordingly to meet the needs of the learners.

Progress is measured termly and used to share with Senior Leaders in Pupil Progress Meetings to ensure all children are progressing at an appropriate level for them. At the end of each year, teachers assess children

in accordance with the Department for Education (DfE) Framework, stating whether they are working towards, expected, or working at a greater depth.

• In Year 1, teacher assessments are completed during the autumn and spring terms and an NTS assessment is completed during the summer term to support their end of year teacher assessment.
• In Year 2, the NTS assessment is used across the terms with past SATs and optional papers as decided by NPAT.

Senior Leaders review data termly and use this as the basis of Pupil Progress Meetings, which then feed into action plans for staff to ensure progress and 'challenge for all'.

If children are working below the expected level for their year group due to SEN needs, teachers will assess the child against their own small steps in learning. Teachers should ensure they understand the needs of these children and that communication with parents is clear. The teacher needs to identify the key gaps in the children's learning and plan for their specific individual needs.

Fluency

At Stanton Cross, specific fluency sessions are planned and taught using Number Sense Maths resources. Learning key number facts securely builds the firm foundations to access all mathematical concepts. It is the maths equivalent to a phonics strategy to allow learners to confidently approach the maths curriculum. Having a trust approach that prioritises regular, explicit fluency sessions is aligned with the work across our trust on cognitive science.

In Key Stage One, children are taught key strategies to learn all addition and subtraction facts up to 20. At Stanton Cross we use the program 'Number Sense Maths' to support our planning and teaching. A long-term map is used from the Reception stage up to the end of Year 2 to support progression and ensure skills are built upon and applied to new concepts within all mathematics lessons.

Parental Involvement

Parents Evenings are completed in the Autumn and Spring Terms. This is an opportunity for the parent to see the progress of their child's mathematics, discuss the attainment at that point in the year and to discuss their next steps.

The Role of ICT

Each class has an interactive LED screens installed, which is used when appropriate in lessons. Teachers and children also have access to iPads and chrome books and can be used in mathematics when appropriate to enhance the children's understanding of mathematical concepts.

Resources

Classroom resources are selected to align with the teaching of mathematics and are age appropriate for all learners. Math specific concrete manipulatives in school include: Numicon, base10, place value cards, counting sticks, counters, subitising cards, rulers, Unifix, cubes, dice, dominoes, number lines and hundred squares. Further resources are utilised when appropriate, including real life objects, games and equipment for measurement, shape and space activities.

Review and Evaluation

Opportunities for teachers to review the scheme, policy and published materials and action plan (SIP) are given on a regular basis during staff meetings.