



St. Nicholas C of E Primary School

Mathematics Policy

Our vision

We prepare every pupil for their best future by ensuring they reach their full potential and attain the knowledge, skills and understanding required for success as we believe that 'With God, all things are possible'. Matthew 19:26



Date reviewed:	September 2023
Reviewed by:	J. Hyndman
Approved by Headteacher:	October 2023
Date of next review:	Autumn 2026

The national curriculum for mathematics intends to ensure that all pupils:

1. 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
2. Reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
3. 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.

Intent

When teaching mathematics at St Nicholas CE Primary School, we intend to provide a curriculum which caters for the needs of all individuals and sets them up with the necessary skills and knowledge for the future. We incorporate sustained levels of challenge through varied and high quality activities with a focus on fluency, reasoning and problem solving. Pupils are required to explore maths in depth, using mathematical vocabulary to reason and explain their workings. A wide range of mathematical resources are used and pupils are taught to show their workings in a concrete, pictorial and abstract form wherever suitable. They are taught to explain their choice of methods and develop their mathematical reasoning skills. We encourage resilience and acceptance that struggle is often a necessary step in learning. Our curriculum allows children to better make sense of the world around them relating the pattern between mathematics and everyday life.

Implementation

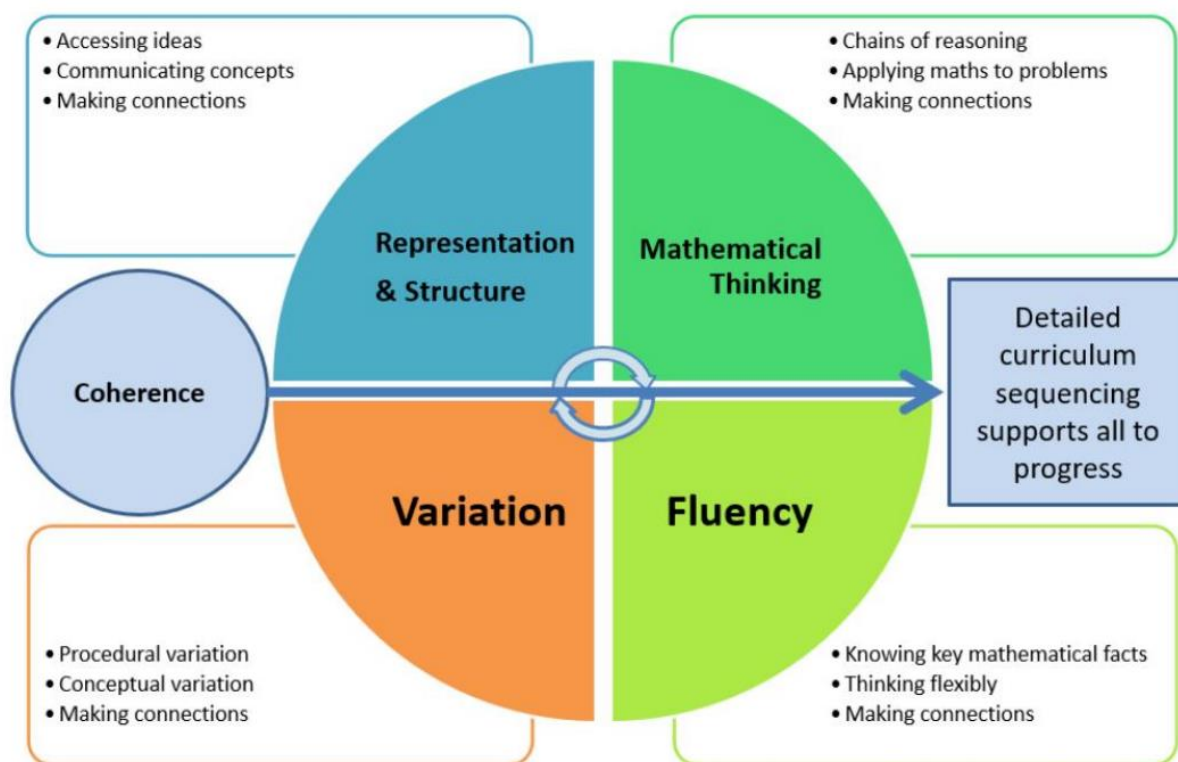
At St Nicholas CE Primary School, we follow the National Curriculum for Maths - https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/335158/PRIMARY_national_curriculum_-_Mathematics_220714.pdf

All teachers follow a termly overview and are encouraged to design lessons using a range of resources, including, but not limited to, the White Rose Maths Scheme of Learning, Third Space learning, NCETM, I See Reasoning and NRICH. The overviews set out the order in which topics should be taught and how much time should be dedicated to each one. On occasion, teachers may identify that a particular

cohort requires additional time to achieve mastery of a certain topic or group of objectives. Likewise, it may occasionally be possible for a cohort to develop a deep understanding of a particular topic in less time than is allowed for on the yearly overview. Teachers therefore exercise their professional judgement when deciding when to move onto the next unit of learning. A typical Maths lesson provides the opportunity for all children, regardless of their ability, to become confident and capable learners. Children are encouraged to develop fluency in their recall of key facts and a whole school approach to the teaching of calculation strategies is deployed across the school. Reasoning and problem-solving skills are explicitly taught to enable children to become independent learners who are prepared to take risks. Problem solving and Reasoning should be an integral part of Maths lessons so the children have the ability to use and apply their knowledge readily. Use of reasoning and problem solving resources will offer rich and varied challenges that will help deepen the child's understanding within the curriculum content of that specific year group rather than rushing through content of the next year group. Additional time is allocated to arithmetic to ensure key skills in calculation are retained. The teaching of multiplication facts continues to be a discrete focus, where the applications of these skills are essential for accessing other areas of mathematics. To make the learning relevant, cross-curricular links are made wherever possible and children are encouraged to apply skills from all areas to complete real-life challenges and give learning a sense of purpose.

In September 2020, St Nicholas CE Primary School began transitioning towards a mastery approach to the teaching and learning of mathematics. We understand that this is a gradual process and will take several years to embed. The rationale behind changing our approach to teaching mathematics lay within the NCETM Maths Hub Programme as well as the 2014 National Curriculum, which states:

- *The expectation is that most pupils will move through the programmes of study at broadly the same pace.*
- *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.*



Our teaching for mastery is underpinned by the NCETM's 5 Big Ideas.

- Opportunities for **Mathematical Thinking** allow children to make chains of reasoning connected with the other areas of their mathematics.
- A focus on **Representation and Structure** ensures concepts are explored using concrete, pictorial and abstract representations, the children actively look for patterns and generalise whilst problem solving.
- **Coherence** is achieved through the planning of small, connected steps to link every question and lesson within a topic.
- Teachers use both procedural and conceptual **Variation** within their lessons and there remains an emphasis on **Fluency** with a relentless focus on number and times table facts.

Maths manipulatives are readily available in all classrooms for children to use as and when they need. Maths manipulatives allow children to work in a way that is best for them. By working independently with math manipulatives, children are better able to work at their own pace and spend more time on concepts or problems that are particularly difficult for them. By practicing math processes with math manipulatives, learners can see exactly how the process affects the numbers and how problems are solved.

Teachers/Teaching Assistants will deliver additional maths sessions to children who require extra support. These are planned to enable the children to close any mathematical gaps in learning that they may have and these sessions are timely and effective.

Maths in EYFS

Daily mathematics lessons use material from the NCETM's Mastering Number programme. This programme aims to secure firm foundations in the development of good number sense for all children. Children are taught as a whole class to begin with. The children have a wide range of structured play resources available to them throughout the year - this is known as "continuous provision". The adults model the use of these resources and the appropriate mathematical language as they support the children in their play.

Maths in Year 1

Daily mastering number sessions follow the 'Mastering Number' programme. These are additional to the main maths lesson. The aim over time is that children will leave KS1 with fluency in calculation and a confidence and flexibility with number.

The NCETM curriculum prioritisation resource provides coherent sequencing for the year 1 curriculum. Teachers use this to secure firm foundations before moving onto new learning. The Curriculum Prioritisation resource begins with a week-by-week curriculum mapping and directs teachers, for each unit of learning, to the relevant professional development and teaching resources from the spines.

Maths in Year 2

Daily mastering number sessions follow the 'Mastering Number' programme. These are additional to the main maths lesson. The aim over time is that children will leave KS1 with fluency in calculation and a confidence and flexibility with number.

Teachers follow the 'St Nicholas Maths Overview' to plan their maths lessons. Teachers ensure that all national curriculum objectives are covered, whilst using the NCETM spines and the suggested small steps to support planning. Teachers adapt lessons to meet the needs of all learners and use the suggested documents and websites to help to support and challenge all children.

Maths in KS2

Daily Fast in Five sessions will be taught at the start of every maths lesson. Fast in Five provides a daily set of arithmetic practice, designed to help children develop and maintain fluency in both written and mental calculations. The structure of Fluent in Five is also designed to help children distinguish between written and mental calculations.

Teachers follow the 'St Nicholas Maths Overview' to plan their maths lessons. They will ensure that all national curriculum objectives are covered, whilst using the NCETM spines and the suggested small steps to support planning. Teachers adapt lessons to meet the needs of all learners and will use the suggested documents and websites to help to support and challenge all children.

Impact

As a result of our Maths teaching at St Nicholas, the impact will be:

- Engaged children who are all challenged.
- Through discussion and feedback, children talk enthusiastically about their maths lessons and speak about how they love learning about maths.

- Pupils who have the ability to think clearly and logically with confidence, independence and flexibility, seeing relationships and connections in maths.
- Pupils know how and why maths is used in the outside world and in the workplace. They know about different ways that maths can be used to support their future potential.
- Pupils who are able to recall basic facts rapidly and the use of mental strategies as well as the ability to recognise when it is appropriate to use other calculation strategies.
- Pupils use acquired vocabulary in maths lessons. They have the skills to use methods independently and show resilience when tackling problems.
- Pupils who show resilience to reason mathematically and solve a range of problems.

The role of the Subject Leader

The subject leader is responsible for preparing policy documents, curriculum plans and schemes of work for Maths; Reviewing changes to the curriculum and advising on implementation; Monitoring the teaching and learning of Mathematics, providing support where necessary; Ensuring continuity and progression from year group to year group; encouraging staff to provide effective learning opportunities for pupils; Helping to develop colleagues' expertise in the subject; Organising the deployment of resources; liaising with teachers across all phases; Communicating developments in the subject to all teaching staff; Leading staff meetings and providing staff members with appropriate training; Organising, providing and monitoring CPD opportunities; Ensuring common standards are met for recording and assessing pupil performance; Advising on the contribution of Maths to other curriculum areas, including cross-curricular and extra-curricular activities; Collating assessment data and setting new priorities for the development of Maths.

The role of the Classroom teacher

The class teacher is responsible for acting in accordance with this policy; Ensuring progression of pupils' mathematical skills, with due regard for the National Curriculum; Planning lessons effectively, ensuring a range of teaching methods are used to cover the content of the National Curriculum; Liaising with the subject leader about key topics, resources and support for individual pupils; Monitoring the progress of pupils in their class and reporting this on an annual basis to parents; Reporting any concerns regarding the teaching of the subject to the subject leader or a member of SLT; Undertaking any training that is necessary in order to effectively teach Maths.

The role of the SENCO

The role of the SENCO is to liaise with the subject leader in order to implement and develop maths throughout the school; Organising and providing training for staff regarding the maths curriculum for pupils with special educational needs and disabilities; Advising staff on how best to support pupils' needs; Advising staff on the inclusion of mathematical objectives in pupils individual education plans; Advising staff on the use of teaching assistants in order to meet the pupils' needs.

Maths Working Wall

All classes are expected to have a Maths working wall. This helps to support children in their current learning and enable independence. The wall is built with the children

at the point of teaching, time spent displaying things on the wall outside of teaching time is minimised and what is on there is genuinely relevant. The children have seen the context in which it was put up and have ownership of them, therefore are more likely to understand its purpose and be able to use it.

Times Tables

Times Tables – Knowledge of times tables is an integral part of a competent mathematician as the links between times tables and other areas of maths is vast. By the end of year 4, children should be secure in their knowledge of all times tables. Year 1: 2x, 5x and 10x tables. Year 2: 2x, 3x, 4x, 5x, and 10x tables.

Year 3: 2x, 3x, 4x, 5x 6x and 8x tables. Year 4: all tables. Times tables are explicitly taught in several ways such as: chanting, songs, games, counting sticks, times table grids, concrete resources, TT rockstars. Timetables are set as part of homework and tested on a regular basis and extra support is implemented where necessary if the child is unsure of their tables. Associated division facts are taught to appropriate year groups. Once they are secure with all times tables and division facts, children should become secure with square number, cubed numbers and prime numbers.

Equal Opportunities and Special Educational Needs

The school is committed to high achievement regardless of gender, race, disability or special need. Expectations for all pupils in the school are equal and we endeavour to develop all to the best they can achieve. The school will always seek to inform parents if they have concerns in order to gain their support and co-operation in trying to alleviate the problem. Where required, children's IEPs incorporate suitable objectives from the National Curriculum for Mathematics or Development Matters and teachers keep these objectives in mind when planning work. Please see SEN policy for further guidance.

Cross-curricular Links and Extra-curricular activities

Opportunities arise in many subject areas for children to carry out investigations, use mathematical skills and concepts and realise the practical worth of spatial, algebraic, graphic and measurement skills in everyday situations. It is therefore encouraged to apply mathematical skills across the curriculum: Art, DT, Geography, Science, History etc. which will allow children to demonstrate their understanding by embedding Maths in other subjects.

ICT now forms an integral part of all Maths teaching, both as a tool for learning and assessment and as a teaching aid. IDL Maths will be used within school as a method of intervention and consolidation. White Rose Maths and NCETM online resources are used throughout the school. Other web-based activities will also be used when deemed appropriate by the teacher.

Children also have the opportunity to take part in maths challenge events (both in and out of school time) that are organised within school and also through schools within and beyond the Local Authority.

Assessment

Assessment in mathematics is continuous and on-going. There are assessment opportunities in every lesson. Teachers look for children who know why and how as well as those who demonstrate procedural fluency through the quick, accurate and

efficient calculation of correct answers. Teachers look for children who are able to apply their understanding of mathematics flexibly in new and unfamiliar situations. These on-going assessments that teachers make, as part of every lesson and through marking, help teachers to adjust their teaching on a day-to-day basis.

Teachers use end of unit and end of term summative assessments supplied by White Rose to reinforce judgements and provide further opportunities to identify gaps in pupil learning and tailor future lessons. Pupil will also complete GL assessments twice a year. Teacher judgements are entered on O'Track each term and teachers talk through the progress of their pupils at termly progress meetings.

Recording and Presentation

All children in Years 1 to 6 have a maths book containing squared paper. Children may record in their books during the "guided practice" part of the lesson or mini whiteboards may be used. Independent tasks will usually be completed in books to support teachers to make assessments. Wherever possible, teachers are encouraged to limit printing and photocopying by allowing children to copy down questions and tasks from the board rather than by providing a worksheet. However, it is recognised that in some, a pre-prepared worksheet will provide the best learning opportunity, e.g. where a series of representations or the progressive removal of scaffolding is required to ensure all children can access new learning.

Children are always encouraged to record their own ideas and methods, using symbols, full sentences and drawings. Children are encouraged to work as neatly as possible but fostering independent mathematical thinking is prioritised over presentation, particularly in Years 1 to 3. There should be a clear progression in children's ability to express themselves mathematically across the year, supported in the early stages by appropriate levels of adult modelling and scaffolding.

Children use only pencil in their maths books. In Key Stage 2, children write one number per square (with the exception of indices and fractions) and use rulers to draw straight lines. In Key Stage 1, children are also encouraged to make progress towards these expectations.

Monitoring and Evaluation

The subject leader is responsible for the implementation of the policy which is reviewed regularly according to the school's schedule for the review of policies. The subject leader reports to the Headteacher and to the Standards and Effectiveness sub-committee of the Governing Body.

Monitoring of planning, learning walks and scrutiny of books, etc. are undertaken by the subject leader and Senior Management. Any information with regards to maths that arises during learning walks carried out by members of the SLT or SMT, are fed back to the maths lead (Mrs J Hyndman). Any professional development issues that arise from monitoring will be dealt with by the subject lead in co-operation with the SLT and further support given as needed.

Parental Involvement

We recognise that parents and carers have a valuable role to play in supporting their child's mathematical learning. An overview of the curriculum for each year group is available on the school's website.

Parents are kept informed through:

- ◆ Annual reports to parents giving targets
- ◆ Formal parent consultation evenings in the Autumn term and the Spring term.
- ◆ Optional parent consultations end of year.
- ◆ Informal Open Evening in the Autumn term.
- ◆ IEP's are shared with parents.
- ◆ Informal meetings with the teacher throughout the year as/when the teacher or parent has a concern.
- ◆ Informal letters/targets sent to parents depending on the need of the child.