



SAINT MARY'S CATHOLIC PRIMARY SCHOOL

MATHEMATICS POLICY

INTRODUCTION

This policy outlines the teaching, organisation and management of the mathematics curriculum taught at St Mary's Catholic Primary School. The policy has recently been updated to reflect changes that the maths subject leader has made with regards to the structure, teaching and consistency of maths lessons across the school, in discussion with the Headteacher and teachers in the school. The implementation of this policy is the responsibility of all the teaching staff.

Curriculum Intent

At Saint Mary's, we are ambitious for all pupils and aim to develop a life-long love for mathematics through the delivery of engaging, high-quality lessons that are inclusive, coherent and carefully sequenced. We recognise that pupils arrive with diverse starting points and experiences, and we are committed to ensuring that all children—including those with Special Educational Needs and Disabilities (SEND), pupils learning English as an Additional Language (EAL), and those eligible for Pupil Premium—are supported to achieve highly.

We place a strong emphasis on developing secure conceptual understanding alongside fluent procedural knowledge. Our mathematics curriculum prioritises problem-solving and reasoning, enabling pupils to think mathematically, explain their thinking using subject specific vocabulary and apply their learning in a range of contexts. Lessons provide a range of problem-solving and reasoning tasks, which are carefully adapted to remove barriers to learning while maintaining high expectations for all pupils.

Teaching is informed by the principles of the White Rose Maths scheme and makes consistent use of the concrete, pictorial and abstract (CPA) approach. This ensures that learning is accessible to all pupils, particularly those with SEND and EAL, through the use of manipulatives, visual representations, structured talk and pre-teaching of key vocabulary. Targeted scaffolding, timely intervention and appropriate challenge enable pupils to make strong progress from their individual starting points. Daily fluency through the use of Flashback 4 starters, supports automaticity and confidence, including number bonds in Key Stage 1 and multiplication and related division fact recall in Key Stage 2.

Our progressive curriculum is designed to build knowledge and skills over time, ensuring continuity and coherence as pupils move through the school. We aim for all pupils to meet end-of-year expectations where possible, and for all pupils—including disadvantaged learners—to achieve well and be prepared for the next stage of their education.

Our ultimate aim is that pupils leave Saint Mary's as confident, resilient and fluent problem-solving mathematicians, equipped with the knowledge, skills and positive attitudes needed to succeed in secondary education and in later life. We are committed to providing an equitable mathematics curriculum that promotes inclusion, removes barriers to learning and enables every child at Saint Mary's to fulfil their potential.

TEACHING AND LEARNING

Planning

Mathematics is a core subject of the National Curriculum and we use objectives based on the National Curriculum 2014 as the basis for our implementation of our Programme of Study. Planning is done in two phases – long term and short term. Long Term Plans (LTPs) follow the White Rose scheme LTPs and are adapted to our school's term times in order to ensure all of the content required is taught. These can be adapted by teachers where necessary to suit pupils' learning/school year. Short Term Planning (STPs) is completed at the teacher's own discretion as we are a one-form entry school. Personal planning is not compulsory for maths though teachers may wish to write individualized plans for weekly lessons to support child interventions where a TA is able to assist.

Pupils are provided with a variety of opportunities to develop and extend their mathematical skills in and across each phase of education. Appropriate mathematical terminology is used in our teaching and children are also expected to use it in their verbal and written explanations. Although children are still sometimes taught in differentiated groups, more mixed-ability teaching is now happening in line with the mastery approach our school has adopted. This allows most children to access the appropriate objectives and to be involved in a high level of problem-solving and reasoning discussions. In both cases, skills and activities maximize developing skills.

Mathematics is used in other curriculum areas wherever possible or appropriate. This helps to expand and consolidate mathematical concepts and using maths in a purposeful way in real contexts helps the children to realise that mathematics is important in the real world.

Our lesson structure has recently been restructured to capitalise on our use of the White Rose scheme that we follow. This includes a starter activity called 'Flashback 4' (to develop fluency), whole class teaching input (with modelling from both the teacher and pupils, where there are opportunities to have a go and practice questions that, in turn, allows for discussion and explanation) and independent practice; where the children can apply their skills developed throughout the lesson. Children are encouraged to work in mixed-ability groups and/or pairs. The teaching and use of explicit **stem sentences** are recommended to improve our children's mathematical explanations and vocabulary. The teaching of mathematics at St Mary's Primary School provides opportunities for:

- ✓ Group work
- ✓ Paired work
- ✓ Individual work
- ✓ Whole class teaching

Through careful planning and preparation in maths lessons, pupils engage in:

- ✓ The development of mental strategies
 - ✓ Written methods
 - ✓ Practical activities and mathematical games
 - ✓ Investigational work
 - ✓ Problem solving
 - ✓ Reasoning
- } with a focus on written mathematical explanations

- ✓ Mathematical discussion
- ✓ Consolidation of basic skills and number facts, with frequent rehearsal, predominantly in times tables and number bonds.

At St Mary's Catholic Primary School, we recognise the importance of establishing a secure foundation in mental calculation and recall of number facts before standard written methods are introduced. We use the appropriate mathematical terminology, in line with the teaching of White Rose, and children are expected to use it in their verbal and written explanations. Mathematics is used in other curriculum areas wherever possible or appropriate. This helps to expand and consolidate mathematical concepts and using maths in a purposeful way in real contexts helps the children to realise that mathematics is important in the real world. We endeavor to set work that is challenging, motivating and encourages the pupils to talk about what they have been doing. It is intended that the primary focus of our mathematics should be based upon calculation, to lay strong foundations for the using and applying of mathematics in real-life situations.

Teaching Time

To provide adequate time for developing mathematical skills, each class teacher will provide 4x mathematics lessons each week, though these may be blocked as appropriate. This may vary in length but will usually last for about 60-75 minutes, dependent upon the age of the pupils. Currently, maths is taught after break-time, 10:45 – 12.00 (1hour, 15mins). Additional mathematics may be taught within other subject lessons when appropriate: for example, science and data collection.

Teachers of Early Years Foundation Stage children base their teaching on objectives from the Development Matters in Early Years Foundation Stage (EYFS) framework which ensures they are working towards the 'Early Learning Goals for Mathematical Development' (ELG), that come under the headings of:

- ✓ Number
- ✓ Shape, space and measures

Towards the end of EYFS, teachers aim to draw the elements of a daily mathematics lesson together so that by the time children move into Year 1, they are familiar with a more structured lesson.

Resources for the Teaching of Mathematics

There is a range of resources to support the teaching of mathematics across the school. These include a wide range of manipulatives with each class having their own set of Numicon, Dienes and Cuisenaire, in addition to specific, age-appropriate materials. In addition, there are games, measuring equipment and other practical apparatus. Staff are encouraged to use the resources they need but to ensure that they are returned to the appropriate place when finished with so that other classes can make use of them. Moreover, teachers have access to a wide variety of resources through the White Rose scheme such as part-whole models and interactive representations.

All classrooms have a number line and a wide range of appropriate small apparatus (e.g. number squares, numeral cards, cubes, dice and dominoes). Within the classroom, resources are readily accessible to children who are encouraged to select materials that are suitable to their task. In the Early Years Foundation Stage this selection of resources will need guidance from the class teacher but as pupils' progress through the school they should become increasingly independent in their selection.

CALCULATIONS POLICY

We believe that too great a diversity of calculation strategies can be confusing to many children and therefore have a 'Calculation Policy' to demonstrate our beliefs and teaching approaches. This is also available for parents to access on the school website.

RECORDING

There are occasions when it is not necessary to record mathematics in a permanent form, but there are also occasions when it is both quick and convenient to carry out written calculations. It is also important to record aspects of mathematical investigations. Children are taught a variety of methods for recording their work and they are encouraged and helped to use the most appropriate and efficient method of recording.

Children are encouraged to use mental strategies before resorting to a written solution.

Recording work may involve children making rough jottings first, especially so during whole class teaching, followed by recording actual answers ready for self and teacher marking. All children are encouraged to work tidily and neatly whether recording their actual answer or making jottings. Both form important evidence for the teacher. Work is recorded in exercise books in a structured way, using a double page per lesson; the date and heading of 'Flashback 4' is written at the top left and underlined neatly with a pencil and ruler. All maths work is recorded in pencil. Underneath the starter (that is self-marked by the children but discussed as a whole class led by the teacher), the rest of the page is used for jottings from whole-class input. The right-hand page is used for the White Rose worksheet which specifies the learning objective of the lesson (seen in Learning Journey's at the end of a unit of work) on which the children record their independent work.

SKILLS

Our pupils should:

- ✓ have a strong understanding of the **value** of a number and its **place value**
- ✓ know by heart number facts such as number bonds, multiplication tables (including the division inverses), doubles and halves and common fractions including their decimal and percentage equivalents
- ✓ use what they know by heart to efficiently mentally calculate
- ✓ calculate accurately and efficiently, both mentally and in writing, drawing on a range of calculation strategies
- ✓ recognise when it is appropriate to use a calculator and be able to do so effectively
- ✓ make sense of number problems, including non-routine/'real' problems and identify the operations needed to solve them
- ✓ reason and justify their ideas using a wide range of appropriate mathematical vocabulary
- ✓ judge whether their answers are reasonable/correct and have strategies for checking them
- ✓ suggest suitable units for measuring and make sensible estimates of measurements
- ✓ explain and make predictions from the numbers in graphs, diagrams, charts and tables
- ✓ develop spatial awareness and a deep understanding of the properties of 2D and 3D shapes

In addition to a secure understanding of number and calculation facts, the other essential skills for high quality mathematical learning are:

- ✓ **Problem Solving** – knowing the strategies and resources that need to be used to solve a problem and using these efficiently
- ✓ **Fluency** – being able to explain methods and reasoning verbally and in written form using appropriate mathematical language and symbols, including recognizing many different representations of number
- ✓ **Reasoning** – being able to think logically and justify ideas e.g. “prove it/convince me” scenarios, with a focus on relating these justifications to what is already known and what can be deduced

SPECIAL EDUCATIONAL NEEDS (SEND)

At St Mary's, we recognise that Quality First Teaching (QFT) is paramount. Accordingly, within the daily mathematics lesson, all teachers aim to provide activities to support children who find mathematics difficult. Children with SEND are taught within the daily mathematics lesson and are encouraged to take part when and where possible. Where applicable, children's COPs targets are kept in mind when planning work with appropriate differentiation, if required for the SEND child, incorporated into all mathematics lessons to ensure that every child can access the lesson and meets their full potential.

When educational support staff are available to support groups or individual children, they work collaboratively with the class teacher. The support teacher feeds back to the class teacher when appropriate to inform evaluations, assessment and future planning.

More able children at mathematics will be taught within their own class and stretched through depth of challenge within a task known as 'extension questions' so that a skill is truly embedded and can be applied in novel situations rather than simply moving to 'bigger' numbers with only a superficial knowledge of the skill involved. When working with the whole class, teachers will differentiate questions so that all children are genuinely challenged and progress. When possible, outside agencies, e.g. secondary schools, will be involved.

EQUAL OPPORTUNITIES

All children have equal access to the mathematics curriculum regardless of gender, social context or special needs. This is monitored by analysing pupil performance throughout the school to ensure that any disparity between the groups is minimised and a plan of action devised to improve this.

We incorporate mathematics into a wide range of cross-curricular subjects and seek to take advantage of multi-cultural aspects of mathematics. In the daily mathematics lesson, we support children with English as an additional language in a variety of ways. E.g. repeating instructions, speaking clearly, emphasising and explaining key words, using picture cues, playing mathematical games, encouraging children to join in counting, etc.

I.C.T.

ICT will be used in various ways to support teaching and motivate children's learning, for example, iPads for Times Table Rock Stars (TTRS). However, it is only to be used in the daily mathematics lesson when it is the most efficient and effective way of meeting the lesson objective.

ASSESSMENT AND REPORTING

Assessment will take place at three connected levels:

- ✓ short-term
- ✓ medium-term
- ✓ long-term.

These assessments will be used to inform teaching in a continuous cycle of planning, teaching and assessment.

Short-term assessment should be an ongoing part of every lesson. The teacher will share the objectives for the lesson with the children and make sure they are clear what is being expected of them to successfully achieve the objective. The short-term assessment will also involve the teacher checking the children's understanding throughout the lesson, so where pupils have grasped the objective, they are encouraged to extend their learning and where children have not quite grasped the concept, are able to spot gaps in learning which can be immediately addressed as the lesson progresses. This can then be used to inform future planning. AfL questions are encouraged through whole-class input. Children self-assess their understanding through purple pen.

Medium-term assessment takes place at the end of every maths unit and is reflected in a Learning Journey. At the end of a unit, children are asked to reflect upon their learning and record (through smiley faces) how well they believe they have understood the objective listed in the Learning Journey. The teacher then assesses this work themselves and identifies an area of learning where the child may need further consolidation before moving on to a new unit.

Long-term assessment will take place twice during the year, Autumn and Spring. This assessment reviews pupils' progress and attainment across the year. These are made through compulsory National Curriculum mathematics tests for pupils at the end of Year 6, the Times-Tables test for pupils at the end of Year 4, (from 2020) and supplemented by a range of other tests across all year groups. Teachers will also draw upon their own records of attainment, supplementary notes and knowledge about their class to produce an accurate summative record.

Pupil progress is discussed with parents /carers at Parent's Evenings twice per year and in a formal written report at the end of the year in the summer term.

All end-of-year SATs results are analysed and appropriate measures taken to address any issues that may have arisen. Each teacher is also given feedback on their class' performance and a summary of results passed to the next teacher in transition meetings so that a full picture of the class' strengths and weaknesses can be identified from the beginning of every year. All data is recorded on Arbor.

MARKING OF MATHEMATICS WORK

Children's written work is marked on completion of a lesson or a task through a variety of different methods dependent on task, year group and support. Children are actively encouraged to be involved

in marking through opportunities for self or peer assessment.

For further details on marking of pupils' work in mathematics please refer to the school **Marking Policy**.

EVALUATION AND MONITORING

Maths will be monitored regularly throughout the school by the Maths Leader and Headteacher, through the regular use of:

- ✓ Learning Walks
- ✓ Lesson observations
- ✓ Book scrutinies
- ✓ Planning audits
- ✓ Work scrutinies
- ✓ Pupil voice
- ✓ Assessment and analysis of data

Where possible, these are carried out in a coaching style, in line with school and CMAT guidance.

GOVERNING BODY

At St Mary's, we submit regular reports about the development of numeracy within the school to the full governing body. This policy will be reviewed annually to reflect changes in curriculum planning and development.

ROLE OF THE MATHS COORDINATOR

The work of the Maths Leader involves, being informed about, and providing a strategic lead and direction for the subject in the school.

The Leader will:

- ✓ Ensure teachers are familiar with the framework, helping them to plan lessons and supporting colleagues, where necessary, in the teaching of mathematics
- ✓ Lead by example in the way they teach in their own classroom
- ✓ Prepare, organise and lead appropriate INSET, with the support of the Headteacher
- ✓ Work co-operatively with the SENCO and SLT
- ✓ Observe colleagues regularly with a view to identifying the support they need and monitoring the quality of teaching and learning in the classroom
- ✓ Attend relevant INSET and CPD to keep up to date with current developments in the subject
- ✓ Inform parents
- ✓ Discuss with the Headteacher and appropriate governors the progress of implementing the strategy in the school.
- ✓ Moderate, monitor and evaluate the standards of children's work and of the quality of teaching in the school by conducting regular work and planning scrutinies, learning walks, pupil interviews and assessment data analysis.

The Headteacher will

- ✓ Lead, manage and monitor the implementation of the framework, including monitoring medium and long-term plans and the quality of teaching in the classrooms
- ✓ Keep the governing body informed about the progress of the framework
- ✓ Ensure that mathematics remains a high profile in the school's development work
- ✓ Deploy support staff to maximise support for the framework