



Growing, loving and learning in the arms of Mary'

Maths Policy

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Author: Gina Robinson and Claire Clinton

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Intention

At St. Mary's we have embedded a whole school mastery approach to mathematics and strive to provide a mathematically stimulating environment where children are able to calculate, reason and solve problems both in number and in their everyday lives. We aim to build a mathematical learning culture where children are resilient and take risks in their learning. Consolidation and retrieval of number facts are practised daily to ensure fluency of number.

Our four curriculum drivers are:

- *Belief
- *Rights
- *Environment
- *Wellbeing

Planning ensures that these drivers run coherently across school and through every subject.

The aims of the 2014 National Curriculum are for our pupils to:

- 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 non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

The National Curriculum sets out year-by-year programmes of study for key stages 1 and 2. This ensures continuity and progression in the teaching of mathematics.

<https://www.gov.uk/government/publications/national-curriculum-in-england-mathematics-programmes-of-study>

Statutory framework for Early Years 2021

<https://www.gov.uk/government/publications/early-years-foundation-stage-framework--2>

Maths is a subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are organised into 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.

The purpose of mathematics in our school is to develop:

- Positive attitudes towards mathematics and awareness of the relevance of mathematics in the real world
- Capability and confidence in using and applying mathematical knowledge, concepts and skills
- An ability to solve problems, to reason, to think logically and to work systematically and accurately
- Creativity and motivation to work both independently and in cooperation with others
- Confident talking about mathematics whereby the children can discuss different strategies, share their ideas and learn from mistakes

Implementation

Breadth of study

Careful planning and preparation ensures that throughout the school children engage in:

- Practical activities and games using a variety of resources
- Problem solving to challenge thinking
- Individual, paired, group and whole class learning and discussions
- Purposeful practise where time is given to apply their learning

Through our creative approach to teaching and learning we also seek to explore and utilise further opportunities to use and apply mathematics across all subject areas.

Planning

EYFS Framework 2021

Mathematics

ELG: Number - Children at the expected level of development will: -

- Have a deep understanding of number to 10, including the composition of each number
- Subitise (recognise quantities without counting) up to 5;
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

ELG: Numerical Patterns - Children at the expected level of development will:

- Verbally count beyond 20, recognising the pattern of the counting system
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally

Programme of Study and Domains KS1/KS2

The programmes of study for mathematics are set out year-by-year for key stages 1 and 2, with Year 1 building on the knowledge, skills and concepts from EYFS.

The programmes of study are organised into 10 distinct domains:

- Number and place value
- Calculation: Addition and subtraction. Multiplication and division
- Fractions, decimals and percentages
- Ratio and proportion
- Geometry: Properties of shape. Position and direction
- Statistics
- Measures
- Algebra

Sufficient time is given to each domain to allow all pupils to master the specific knowledge, concepts and skills. The curriculum outline has been planned to support coverage but teachers adapt time scales according to the needs of individual cohorts. Domains are taught through a cycle approach, recalling and securing prior knowledge then the practise and application of new knowledge. Clear links are made between different domains as mathematical concepts cannot be taught in isolation due to the interconnected nature of mathematics. Time is also planned for pupils to recall, practise and apply knowledge through the wider curriculum. At St. Mary's we follow the White Rose Maths long, medium and short term planning and it is adapted as necessary.

Lesson Design

In all lessons, learning objectives and success criteria are discussed. The emphasis in lessons is to make teaching interactive and lively, to engage all children encouraging them to talk about mathematics.

Lessons involve elements of:

- Instruction – giving information and structuring it well
- Structure and Model – showing, describing and modelling mathematics using appropriate resources and visual displays
- Intelligent Practice/Application
- Reflect and assess – identifying mistakes and using them as positive teaching points
- Summarising – reviewing mathematics that has been taught enabling children to focus on next steps

How we ensure the needs of all pupils will be met

At St. Mary's the children work in mixed ability groups and access the same learning objective. Work is differentiated through the amount support and by the amount of time children use concrete equipment. The expectation is that the majority of pupils will move through the programmes of study and the domains at broadly the same pace. However, we acknowledge this is our aim and what we are working towards and each cohort of pupils is different and the needs of a cohort of pupils can change over time.

Gaps in knowledge, concepts and skills are addressed as quickly as possible. EYFS and KS1 are focused on developing true fluency of key mathematical concepts which provide the basis for all future learning and the approaches adopted are based on brain/learning sciences linked to learning and memory.

Where there remains wider attainment gaps within year groups, a bespoke curriculum and approach to the teaching and learning of mathematics is planned to enable those pupils who are currently working below the expectations of their programme of study and display gaps in their knowledge and understanding are effectively supported to 'catch-up' to their peers as quickly as possible. Therefore, approaches may differ year group to year group.

Challenge

Pupils who grasp concepts rapidly are challenged through rich and sophisticated problems with a focus on specific problem solving and reasoning skills, before any acceleration through new content is considered. School are clear that challenge is linked to depth of understanding which in turn is linked to problem solving and reasoning skills. Teachers spend time considering how the same question/activity/problem can be adapted 'squeezed' to provide sufficient levels of challenge, rather than finding different problems – *quality* question and *quality* response rather than *quantity* of questions and *weak* response. Teachers are provided with question stems such as 'what if ...', 'prove it', 'investigate', 'story it' etc. encouraging pupils as they become familiar with this approach to develop their own lines of enquiry to deepen their thinking.

Scaffold

Pupils who are not sufficiently fluent with earlier knowledge, concepts and skills need to secure and consolidate their understanding before moving on, with the aim that they 'catch-up' to their peers as quickly as possible. This is possible through a range of approaches: daily maths meeting, 'catch-up' intervention and the pre-teach method.

SEN

Pupils with SEN and who are working significantly behind their year group programme of study for mathematics will be offered a bespoke curriculum, planned according their developmental and academic needs. They will however also be given regular opportunity to engage in whole class work through a range of rich, low threshold, high ceiling problems, these are planned into the curriculum intent. (see Curriculum Access Policy)

Impact

Attainment targets

By the end of each key stage, we expect the vast majority of pupils to know, understand and apply knowledge, concepts, skills and processes found in the relevant programme of study.

Formative assessment strategies

Formative assessment is used in the classroom on a daily basis to inform the teacher and pupils about the pupils' performance, knowledge and skills, and this information is then used to plan lessons to improve pupils' learning, thus raising pupils' achievement over time.

Teachers make explicitly clear to pupils:

- The aim of their learning.
- Where they are in relation to this aim
- How they can achieve the aim (or close the gap in their knowledge).
- How to improve

Summative assessment

Summative assessment is used termly to provide a picture of how well a pupil has retained and therefore can recall, use and apply knowledge over a time period within a range of mathematical domains.

End of block assessment

White Rose end of block assessments are used as a form of a test shortly after studying a concept. These provide some level of difficulty and will also be supplemented with additional questions to assess for a 'greater depth' of knowledge and understanding for pupils who achieve a high success rate. Year group teams work together to analyse all assessments completed to identify gaps in learning and provision and to ensure this is in place for the next half term of planning.

Marking

Work should be marked in line with school policy.

<http://www.smrc.school/documents/ourschool/policies/feedbackpolicy.pdf>

This should be done live in the lesson, where instant verbal feedback is given so that children are immediately supported during the lesson or quickly afterwards, rather than retrospective marking, which research informs us, has less impact.

Statutory Assessments

EYFS Baseline assessments

KS1 National Curriculum Tests and teacher Assessments (Year 2)

Multiplication Tables Check (Year 4)

KS2 National Curriculum Tests and teacher Assessments (Year 6)

Monitoring of Standards

Monitoring of maths across the whole school is completed by the maths Subject Leaders and Head teacher. Class teachers have the responsibility of monitoring their year group each term and reporting to the Assistant Head. Teachers are responsible for keeping accurate records of attainment and progress made in line with the school policy on recording data (INSIGHT).

Resources

Each year group has a range of resources to use in their maths lessons. Times Table Rockstars is an online resource which helps children with their instant recall and speed. Due to the statutory times table test (introduced in 2020) teachers are using the resource weekly as well as for homework. NumBots is another online resource used for Early Years and KS1 homework, which is aimed at boosting counting, addition and subtraction skills.

Remote Learning

If a child is isolating in KS1 or KS2 due to COVID19, we ensure work from 'White Rose Maths Home Learning' is put onto Google Classroom daily. In Nursery and Reception activities or videos will be uploaded onto Tapestry for children to access at home with a parent.

Parental Involvement

The Maths Curriculum is shared with parents through the following:

- Tapestry (EYFS)
- Google Classroom (KS1 and KS2)
- Curriculum Meetings
- Curriculum overviews on school website

Role of the Subject Leader

- To lead the development of mathematics
- To raise standards in mathematics
- Prepares, organises and leads CPD and joint professional development
- Works collaboratively with SENCO and SLT
- To monitor and maintain high quality teaching and resources
- To keep up to date with new developments in the area of mathematics
- To keep parents informed about mathematical developments