



St Mary's CE Primary School
Felsham Road
Putney

Mathematics Policy

At St. Mary's we provide an education of the highest quality to enable every child to realise their potential within a nurturing Christian community.

Introduction

This policy is a statement of the aims, principles and objectives for the teaching of mathematics at St Mary's Church of England Primary School. It replaces the previous Mathematics Policy and affects all year groups in the school. It takes into account the National Curriculum 2014 for mathematics and recent curriculum developments. The implementation of this policy is the responsibility of all teaching staff and should be overseen and monitored by the subject leader and the senior leadership team.

Rationale

Mathematics is a tool for everyday life. It is a whole network of concepts and relationships which provide a way of viewing and making sense of the world. It is used to analyse and communicate information and ideas and to tackle a range of practical tasks and real life problems.

Aim

The school's aim is that every child should achieve the highest standard of performance of which he or she is capable in every respect of mathematics. Furthermore, we aim to develop the skill of numeracy in our children so that they are efficient and confident in their approach to mathematics in a wide range of contexts.

Objectives

- to promote enjoyment of learning through practical activity, exploration and discussion;
- to promote confidence and competence with numbers and the number system;
- to develop the ability to solve problems through decision-making and reasoning in a range of contexts;
- to develop a practical understanding of the ways in which information is gathered and presented;
- to explore features of shape and space, and develop measuring skills in a range of contexts;
- to understand the importance of mathematics in everyday life;
- to enable children to select and use a range of mathematical tools effectively;
- to equip children with the mathematical language needed to explain their methods and reasoning.

The Mathematics Curriculum

The national curriculum provides an outline of core knowledge around which teachers can develop exciting and stimulating lessons to promote the development of pupils' knowledge, understanding and skills as part of the wider school curriculum. Mathematics is a core subject of this national curriculum and the knowledge, understanding and skills for this subject are set out in the *National curriculum for England: mathematics programme of study* (2014).

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

The programmes of study for mathematics are set out year-by-year for key stages 1 and 2 (*Mathematics programmes of study: key stages 1 and 2*) and the statutory requirements of what pupils should be taught are known as attainment targets. These attainment targets can be organised into the following strands:

- number
- measurement
- geometry
- statistics
- ratio and proportion
- algebra

Mathematics at the Early Years Foundation Stage

We teach mathematics in our Early Years Foundation Stage (EYFS) in accordance with the *Statutory framework for the early years foundation stage* (2014). At this stage the educational programme in mathematics involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shapes, spaces, and measures. The subject is recognised as one of the Early Learning Goals and St. Mary's ensures that the content specified for number, shape, space and measures is effectively taught. This is achieved through the use of varied activities that allow the children to enjoy, explore, practise and talk confidently about mathematics. At St Mary's children at this stage are developing their mathematical thinking and early vocabulary through the following:

- observation
- communication
- listening
- reading
- recording
- manipulating
- comparing / classifying
- estimating / measuring
- prediction
- choosing / testing
- drawing conclusions

Planning

The teaching and learning of Mathematics at St. Mary's is currently derived from the guidelines provided by the *Statutory framework for the early years foundation stage* and *Mathematics programmes of study: key stages 1 and 2*

documents. However, the school uses the *Abacus* framework provided by Pearson Education to provide whole-school coverage and progression in order to meet these guidelines. Through the use of the *Active Learn* website (www.activelearnprimary.co.uk) our staff have access to the online planning and assessment tools that correspond with the *Abacus* framework. Planning for the teaching and learning of Mathematics here at St. Mary's should follow this expected format:

- **Long Term Planning**
The 'Curriculum Maps' are documents for each year group which outline when each of the teaching units for Mathematics will be taught throughout the academic year. It corresponds with the 'Yearly Overview' from the *Abacus* framework. It is this document that will inform the teacher's Medium Term Planning.
- **Medium Term Planning**
The 'Medium Term Plan' document can be produced directly from the *Active Learn* website and will provide an overview of what *Abacus* strands and key objectives are to be taught for each term. A medium term plan is required for Autumn Term 1, Autumn Term 2, Spring Term 1, Spring Term 2, Summer Term 1 and Summer Term 2. It will be these documents that inform the teacher's Weekly Planning.
- **Weekly Planning**
The 'Weekly Plan' document can also be produced directly from the *Active Learn* website. This will provide staff with the relevant teaching and learning details for a maths lesson for each day of that teaching week. The *Active Learn* website will produce a default plan with suggested ideas and activities. This includes differentiated activities that correspond to the various *Abacus* materials (i.e. Workbooks, Textbooks and interactive activities). However, it is very likely that staff will need to modify and adapt the 'Weekly Plan' to suit the needs of their class, as well as take into consideration the needs of individual pupils, assessment information, prior knowledge, gap analysis etc. Staff are able to modify and adapt these plans once they have downloaded the default plan from the *Active Learn* website.

All of these planning documents should be available to view for monitoring and assessment purposes by the subject leader and senior leadership team and as such teachers are required to print copies and file these in their 'Planning Folder', under the section 'Maths Plans'.

Calculation Policy

St. Mary's has a separate calculation policy that has been designed to give pupils a consistent and smooth progression of learning in calculations across the school. It will help to ensure the development of mathematical fluency, reasoning and problem solving and should be used by all stakeholders involved in the teaching and learning of mathematics in our school.

Assessment for Learning

Assessment for Learning (AfL) is embedded into each maths lesson and teachers use AfL techniques and strategies on a daily basis in order to identify

pupils' strengths and difficulties, inform guided group work and improve the learning outcomes for each child. Short-term planning is constantly reviewed and modified on the basis of these assessments.

Pupil Assessment

Pupil progress will be assessed using a combination of both formative and summative assessment techniques derived from the *Abacus* framework. On the *Active Learn* website a summative assessment toolkit is provided for each year group per half term. This contains a test in arithmetic and a test in problem solving and reasoning. The outcome of these tests can be recorded in the 'Assessment' area of the *Active Learn* website. Test data will help to measure the level of attainment for each child against their Age Related Expectations (ARE). The overall attainment of each child will be recorded as either On Track for ARE (OT), Working Towards ARE (WT) or Below ARE (B). Formative assessment in mathematics will also be measured using a system of statements and steps provided by *Target Tracker* (the school's assessment tool). Assessment in mathematics at St. Mary's should follow this expected format:

- Ongoing
 - Staff to monitor attainment of each child by selecting statements from *Target Tracker* once they have been achieved
- Half-Term and End-of-Term Assessment Tests (*Abacus*)
 - Each child to complete the arithmetic test and the problem solving and reasoning test
 - Staff to record test data using the *Active Learn* website
 - To inform teacher assessments, provide gap analysis, decide on any interventions and to identify trends
- End-of-Term Teacher Assessment (Autumn/Spring/Summer)
 - Using data from both *Target Tracker* and *Abacus* the class teacher provides an overall assessment of each child
 - This overall assessment will be recorded in *Target Tracker*
 - Towards the end of each full term a 'Pupil Progress Meeting' is held between the class teacher and members from the Senior Leadership Team to discuss each child's attainment in relation to their teacher assessment
 - To decide on any interventions and to identify trends
- End of Key Stage National Tests (Year 2 and Year 6)
 - Children are formally assessed at the end of key stage 1 (Year 2) and at the end of key stage 2 (Year 6) according to statutory tests (SATs) administered in May
 - The Year 2 test will consist of Paper 1 (based on arithmetic) and Paper 2 (based on mathematical reasoning)
 - The Year 6 test will consist of Paper 1 (based on arithmetic), Paper 2 and Paper 3 (both based on mathematical reasoning)
 - The raw scores from tests will be converted into a scaled score and each pupil will receive an overall result indicating whether or not they have achieved the required standard on the test
 - Test data will provide statistics on pupil attainment that are reported in school performance tables

In the EYFS each child's level of development must be assessed against the

Early Learning Goals. The class teacher must indicate whether children are meeting expected levels of development, or if they are exceeding expected levels, or not yet reaching expected levels (emerging). In the final term of the year in which the child reaches age five the EYFS Profile must be completed for each child. The EYFS Profile provides parents and carers, practitioners and teachers with a well-rounded picture of a child's knowledge, understanding and abilities, their progress against expected levels, and their readiness for moving into Year 1.

Learning Environment and Resources

St Mary's aims to provide a mathematically stimulating environment:

- through displays that promote mathematical thinking and discussion
- through displays of pupils' work that celebrate achievement
- by providing a good range of resources for both teacher and pupil use

In every classroom, resources such as number lines, hundred squares, place value charts and multiplication squares are displayed as appropriate and used as resources for whole class or individual work, for children to become confident in their use and understanding of the number system. Further to this, each classroom is equipped with a range of mathematical resources to assist with the practical teaching and learning of this subject. Larger and more cumbersome mathematical equipment is placed centrally in a store cupboard (currently located in the hall).

The Role of Information Communication Technology (ICT)

The effective use of ICT can enhance the teaching and learning of Mathematics when used appropriately. When considering its use, we take into account the following points:

- ICT should enhance good mathematics teaching. It should be used in lessons only if it supports good practice in teaching mathematics;
- any decision about using ICT in a particular lesson or sequence of lessons must be directly related to the teaching and learning objectives for those lessons;
- ICT should be used if the teacher and/or the children can achieve something more effectively with it than without it.

Calculators should not be used as a substitute for good written and mental arithmetic. They should therefore only be introduced near the end of key stage 2 to support pupils' conceptual understanding and exploration of more complex number problems, if written and mental arithmetic are secure.

Inclusion and Equal Opportunities

All children are provided with equal access to the mathematics curriculum. We aim to provide suitable learning opportunities regardless of gender, age, religion, sexuality, disability, ethnicity or home background.

Differentiation and Special Educational Needs

At St Mary's the class teachers usually deliver the mathematics curriculum and teaching is organised to enable pupils of all abilities access to the learning. During a maths lesson children are often taught in ability groups and work is differentiated in order to give appropriate levels of work to each ability group. Using the *Abacus* framework the differentiated ability groups are known as Support, Core and Extend. Where appropriate these groups or individual children, including pupils with Special Educational Needs and Disability

(SEND), are supported by our teaching assistants and other learning support staff. Differentiation at St Mary's can occur in various ways:

- grouping according to ability so that the groups can be given different tasks when appropriate. Activities are based on the same theme and usually at no more than three levels;
- stepped activities which become more difficult and demanding but cater for the less able in the early sections;
- common tasks which are open ended activities or investigations where differentiation is by outcome;
- resourcing which provides a variety of resources depending on abilities e.g. counters, cubes, 100 squares, number lines, mirrors.

Following the introduction of the lesson, groups of pupils will sometimes move outside the classroom to carry out practical work, to use ICT or to work with our support staff. All pupils return to be present for the plenary session at the end of the lesson. All pupils, including those with SEND, are set targets in mathematics. These may be individual, group or class targets. The most able mathematicians are provided with appropriate materials to ensure that they are challenged and stretched, and individualised materials are used to broaden their understanding of topics.

English as an Additional Language (EAL)

We support our EAL children in a variety of ways during a mathematics lesson. Whole class sessions provide helpful adult models of spoken English and opportunities for careful listening, oral exchange and supportive shared repetition. Group work provides opportunities for intensive, focused teaching input. We repeat instructions for EAL children when necessary and emphasise key words. Some language may need careful explanation.

Roles and Responsibilities

The subject leader for mathematics is responsible for the following areas:

- ensuring an understanding of both the national curriculum for mathematics and the *Abacus* framework amongst teachers, teaching assistants and other support staff;
- keeping up to date with developments in maths teaching;
- observing colleagues and monitoring the planning and quality of teaching;
- leading by example in the way of teaching in own classroom;
- preparing policy documents;
- advising colleagues and helping to develop expertise;
- encouraging the development of maths activities that are appropriately differentiated and enable progress;
- liaising with the Head Teacher, Deputy, Senior Leadership Team and reporting to Governors as appropriate;
- making purchasing decisions;
- contributing to INSET training of staff.

Health and Safety

In line with the school's Health and Safety Policy, children are instructed in the safe use of all equipment. In particular, extra care should be taken when using heavy weights with balances on the floor and pairs of compasses. Care and attention needs to be taken when younger children are using small apparatus such as counting objects. Children working outside the classroom

will usually work in pairs or groups.

Links with other School Policies and Practices

This policy links with and should be read in conjunction with a number of other school policies, practices and action plans including:

- Calculations Policy for Mathematics
- Teaching and Learning Policy
- Health and Safety Policy
- Policy for ICT
- e-Safety Policy
- Inclusion Policy
- Pupil Behaviour and Discipline Policy

It would be good practice for all staff to familiarise themselves with both this document and the suggested linked documents.

Monitoring and Review

The maths subject leader will review this policy once every year as well as responding to trends that suggest the need for earlier review.

Policy originally written by Mr Mark Lett

Policy last reviewed by:

Name: **Mr Mark Lett – Maths Subject Leader**

Date: **September 2017**

The Policy for Mathematics was reviewed and largely rewritten in:

July-September 2013

Formally adopted by Governors: **September 2016**

Suggested Date of Next review (Annually): **September 2018**