



Learning for Life

Fawbert & Barnard's Primary School

Mathematics Policy

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Contents:

The Importance of Mathematics	Page 3
Purpose	Page 3
Aim(s)	Page 3
Outcomes	Page 4
School Curriculum - Programme of Study	Page 4
Teaching and Learning	Page 7
Inclusion and equal opportunities	Page 8
Resources	Page 8
Displays	Page 8
Assessment	Page 8
Marking and presentation	Page 9
Monitoring and Evaluation	Page 9
Review	Page 9

This policy should be read in conjunction with the feedback and marking, assessment, recording and reporting, display, curriculum, and homework policies.

The Importance of Mathematics

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary in most forms of employment. A high-quality mathematics education, therefore, provides a foundation for understanding the world, the ability to reason mathematically and a sense of enjoyment and curiosity about the subject.

Mathematics is a proficiency which involves confidence and competence with numbers and measures. It requires an understanding of the number system, a repertoire of computational skills and an ability to solve number problems in a variety of ways in which information is gathered by counting and measuring and is presented in graphs, diagrams, charts and tables.

Mathematics gives children a way of coming to terms with their environment. Practical tasks and real-life problems can be approached from a mathematical point of view. Mathematics provides children with imaginative areas of exploration and study and gives them the materials upon which to exercise their mathematical skills. These skills are a necessary tool of everyday life. Mathematics should help children to develop an appreciation of, and enjoyment in, the subject itself; as well as a realisation of its role in other curriculum areas.

Purpose:

The purpose of this policy is to describe our practice in Mathematics and the principles upon which this is based. We want to ensure that all children at Fawbert and Barnard's Primary School are being taught Maths in a systematic, repetitive strategy embedding mastery and recapping using our spiral curriculum that we have designed. This allows children to recap learning each term building on small steps going forward.

Aim(s):

We aim to develop lively, enquiring minds encouraging pupils to become self-motivated, confident and capable in order to solve problems that will become an integral part of their future.

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 have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems
- can 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.

Children deserve

- To be set appropriate learning challenges.
- To be taught well and be given the opportunity to learn in ways that maximise the chances of success.
- To have adults working with them to tackle the specific barriers to progress they face.

Outcomes

In Mathematics education at Fawbert and Barnard's Primary School we aim to sustain and develop in all children:

- confidence, understanding and enjoyment in mathematics;
- awareness of relationship and pattern, and how these can bring about a clearer understanding of a situation;
- an appreciation of mathematics as a means of communication through which they can analyse information and ideas;
- the ability to work systematically where the task requires a careful accurate approach, as well as the ability to show imagination, initiative and flexibility when appropriate;
- independence of thought and action as well as the ability to co- operate within a group;
- problem solving skills and strategies;
- the ability to use mathematics effectively as a tool in a wide variety of situations;
- sensible use of factual recall, mental and written methods in order to solve problems

School Curriculum - Programme of Study

EYFS

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 10, 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.

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.

EYFS will be following the White Rose Maths scheme of learning taking using supplements from the Maths Hub and NCETM as additional activities.

Key Stage 1 and 2

The Programmes of study for mathematics are set out year by year for Key Stages 1 and 2 in the new National Curriculum (2014). The programmes of study are organised in a distinct sequence and structured into separate domains. Pupils should make connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Key Stage 1

The principal focus of mathematics teaching in Key Stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources (e.g. concrete objects and measuring tools).

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should

also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of Year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1.

Lower Key Stage 2

The principal focus of mathematics teaching in lower Key Stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of Year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Upper Key Stage 2

The principal focus of mathematics teaching in upper Key Stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

By the end of Year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Pupils should read, spell and pronounce mathematical vocabulary correctly.

Cross curricular

Throughout the whole curriculum, opportunities to extend and promote Mathematics should be sought. Within every Science topic, children will also develop their mathematical skills. This will help children appreciate how to Work scientifically but also practise discrete mathematical skills. Nevertheless the prime focus should be on ensuring mathematical progress delivered discretely or otherwise.

Teaching and Learning

The approach to the teaching of mathematics within the school is based on:-

- A mathematics lesson every day for 45 minutes
- A daily Maths session for recapping prior learning

The curriculum is delivered by class teachers. Planning is based on the Fawbert and Barnard's Primary spiral curriculum which can be found on our website.

Planning:

When planning a unit of mathematics, teachers are also expected to:

- Plan in opportunities for practical work using concrete resources
- Identify possible misconceptions and create carefully crafted questions which draw out these possible misconceptions
- Help the children to make important mathematical links
- Follow a dialogic teaching approach
- Use mathematical discussion and hinge question in a way of assessing what the children already know
- Use of CPA (concrete, pictorial and abstract) to allow children to become independent
- Link to real-life experiences wherever possible
- Teach and use bar modelling as a strategy for calculation and problem solving
- Teach Part, Part, Whole models (particularly in KS1).

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, ethnicity or home background.

Entitlement

At Fawbert and Barnard's Primary School, we teach mathematics to all children, whatever their ability or individual need. Through our mathematics teaching, we provide learning opportunities that enable all pupils to make good progress. Every child has an equal right to receive the maths curriculum in daily maths lessons of approximately 45 minutes.

Special Educational Needs

All children will have their specific needs met through differentiated work in conjunction with targets. TA support time is planned for and provided in relation to identified needs for individuals and groups.

Resources

All classrooms have a number of mathematical, age-appropriate resources. Resources which are not used or required regularly are stored centrally and accessed by teachers at the beginning of a topic.

Displays

Each classroom / resource area should have a maths display relating to current work. The maths display should be presented to the pupils as a 'maths working wall' in classrooms from Reception to Year 6 and as a 'maths area'. Displays should be accessible to both teaching staff and the pupils and should be updated regularly to reflect pace of learning. 'Working walls' are useful, purposeful and effective in promoting children's independence and progress in the subject. Displays could include: key vocabulary, resources and the four operations, (after they are known to the children), current learning objectives, examples of methods and calculations, higher order questions, challenges, examples of the children's work and interactive opportunities.

Assessment

FFT is used in all year groups from the Years 1 up to Year 6. Data is collected every term. Regular quizzing through lessons, daily maths sessions and opportunities allows teachers to assess children and where they are. Years 2 and 6 complete end of Key stage SATs – which includes mocks prior to this where in order to gauge what gaps of learning needs to be taught.

Marking and presentation

Teachers are expected to adhere to the schools marking policy when marking books

Monitoring and Evaluation

The Curriculum leaders, alongside SLT, are responsible for monitoring and evaluating curriculum progress. This is done through book scrutiny, planning scrutiny, lesson observations, pupil interviews, staff discussions and audit of resources.

Review

The mathematics policy will be reflected in our practise. The policy will be reviewed every 3 years.