BALDERSTONE ST LEONARD'S CHURCH OF ENGLAND PRIMARY SCHOOL

Mathematics Policy

February 2025

Introduction

Mathematics is important in everyday life. It is integral to all aspects of life and with this in mind we endeavour to ensure that children develop a healthy and enthusiastic attitude towards mathematics that will stay with them.

This policy outlines what we are aiming to achieve in respect of pupils' mathematical education. It also describes our agreed approach to the planning, delivery and assessment of the mathematics' curriculum.

INTENT

Mathematics helps children to make sense of the world around them through developing their ability to calculate, to reason and to solve problems. It enables children to understand and appreciate relationships and pattern in both number and space in their everyday lives. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many cultures to the development and application of mathematics.

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

Our Vision for Maths:

We would like our children to:

- Have a love of learning in maths; a positive mindset for maths; a healthy attitude to maths and be confident and fluent with number.
- Be Independent , flexible and creative thinkers, who can confidently make decisions and articulate them.
- Have an understanding of different strategies available and be able to choose and use efficient methods to solve calculations and problems.

We aim….

….. To build resilient learners (who are no afraid to ask questions/and make mistakes)
….. To have informed parents (who understand the mastery methods used in school)
….. for all children to achieve mastery in maths (deeper understanding)

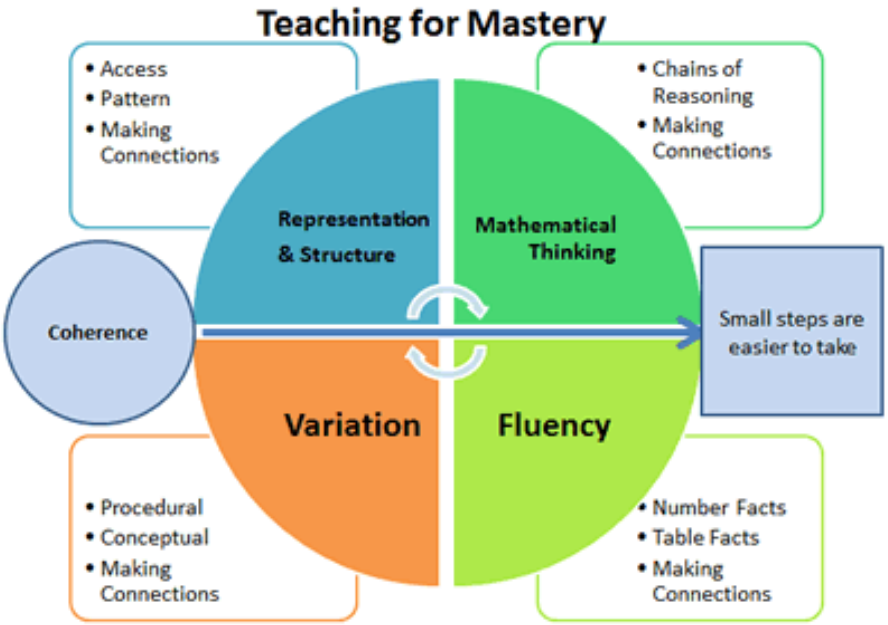
IMPLEMENTATION

We follow the 2014 National Curriculum for Mathematics, through a DFE approved scheme: “Power Maths” and NCETM materials. This provides detailed guidance for the implementation of the National Curriculum for Mathematics and ensures continuity and progression in all teaching. Balderstone school uses the mastery approach for the teaching of mathematics.

Work undertaken within the Foundation Stage is guided by the requirements and recommendations set out in the Statutory Framework for the EYFS (October 2024) and the Development Matters in the EYFS (Revised 2023)

Teaching and Learning through The Mastery Approach

The school uses the mastery approach to deliver maths lessons.



Coherence

“Lessons are broken down into small connected steps that gradually unfold the concept, providing access for all children and leading to a generalisation of the concept and the ability to apply the concept to a range of contexts.”(NCETM)

Power Maths provides these small connected steps, but teachers use their professional judgement when deciding whether to use further resources eg NCETM or White Rose materials.

Representation and Structure

“Representations used in lessons expose the mathematical structure being taught, the aim being that students can do the maths without recourse to the representation”.(NCETM)

Children have the opportunity to use a wide range of manipulatives/ resources across the school: resources such as number lines, number squares, egg boxes, base 10, place value counters, rekenreks, digit cards and other small apparatus to

support their work. Children use ICT in mathematics lessons where it will enhance their learning, as in modelling ideas and methods.

Mathematical Thinking

"If taught ideas are to be understood deeply, they must not merely be passively received but must be worked on by the student: thought about, reasoned with and discussed with others." (NCETM)

Although the programmes of study of the National Curriculum (2013) are organised into distinct domains we believe, as the National Curriculum states, 'that pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasing sophisticated problems' (DFE, 2013:3). With this at the forefront of our teaching, we ensure that using and applying and reasoning is integrated into planning and teaching. We promote mathematical thinking and reasoning at Balderstone through our use of journaling, questioning and collaborative learning. Stem sentences are used to aid, embed and support children's ability to reason.

Fluency

"Quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations of mathematics." (NCETM)

Children in Reception, KS1 and Y3 make use of the "Mastering Number" programme to help children understand and develop automaticity when learning their number bonds.

Years 4 and 5 make use of the "Mastering Number" programme which aims to help children understand and develop automaticity when learning multiplication and related division facts.

In KS2, we provide daily 10 minute fluency activities linked to the national curriculum and year group expectations. It allows for a 'little and often" approach to helping children remember strategies and recall mathematical facts.

We subscribe to Times Tables Rockstars and games to develop multiplication recall skills and utilise games such as Numbots and ICT to focus on number bonds. NCETM Curriculum prioritisation is used as a supplement to the scheme to support the teaching of key number facts.

Variation

"Variation is twofold. It is firstly about how the teacher represents the concept being taught, often in more than one way, to draw attention to critical aspects, and to develop deep and holistic understanding. It is also about the sequencing of the episodes, activities and exercises used within a lesson and follow up practice, paying attention to what is kept the same and what changes, to connect the mathematics and draw attention to mathematical relationships and structure." (NCETM)

During lessons at Balderstone St Leonard's, we encourage children to "notice" patterns in questions sets alongside what is the same/ different about questions. By doing so, we can draw attention to essential features; allow children to make connections; develop the thinking process and avoid cognitive overload.

Foundation stage

We ensure that we adhere to **The Early Years foundation stage statutory framework** and give all the children ample opportunity to develop their understanding of mathematics. We aim to do this through frequent and varied activities that allow them to use, enjoy, explore, practise and talk confidently about mathematics.

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. In addition, the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures.

Teaching and Learning in pre-school makes use of 'Master the Curriculum', which ensures learning through play and links to the Development Matters Framework.

Through problem-solving lessons and activities, children in Nursery are encouraged to use their mathematical skills and understanding to solve problems unfamiliar to them.

Maths reasoning tasks get children thinking about number problems logically so they can reach conclusions, find solutions and decide which methods to use and why.

Fluency tasks help children strengthen their foundational knowledge. They practise applying their skills and understanding to different number problems with varying contexts and levels of complexity, while independently choosing the method they use to tackle number problems successfully. Fluency brings together problem-solving and reasoning.

Planning

Mathematics is a core subject in the National Curriculum, and we use the Mathematics Programmes of Study: key stages 1 and 2 National Curriculum in England (2013) and the DFE approved 'Power Maths' as the basis for implementing the statutory requirements of the programme of study for mathematics. This is often supported/ supplemented with resources from NCETM, Oak Academy and White Rose maths.

In Foundation Stage,

Planning includes mathematics homework tasks to practise and consolidate children's skills and knowledge and to deepen their understanding. How often homework is given and the amount set is in line with our school homework policy.

We ensure our assessments, from marking and discussions with the children, are fed into our planning and that our lessons are matched to the needs of the class. The head teacher and mathematics subject leader are responsible for monitoring the mathematics planning within our school.

Mathematics across the curriculum

Opportunities are also provided for mathematics in other curriculum areas, enabling children to develop and apply their mathematical skills. Some examples of these are:

Science
Almost every scientific investigation or experiment is likely to require one or more of the mathematical skills of classifying, counting, measuring, calculating, estimating and recording in tables and graphs. In science pupils will for example order numbers, including decimals, calculate simple means and percentages, use negative numbers when taking temperatures, decide whether it is more appropriate to use a line graph or bar chart, and plot, interpret and predict from graphs.

Art & DT
Measurements are often needed in art and design and technology. Many patterns and constructions are based on spatial ideas and properties of shapes, including symmetry. Designs may need enlarging or reducing, introducing ideas of multiplication and ratio. When food is prepared a great deal of measurement occurs, including working out times and calculating cost; this may not be straightforward if only part of a packet of ingredients has been used.

History, geography & RE
In history and geography children will collect data by counting and measuring and make use of measurements of many kinds. The study of maps includes the use of co-ordinates and ideas of angle, direction, position, scale and ratio. The pattern of the days of the week, the calendar and recurring annual festivals all have a mathematical basis. For older children historical ideas require understanding of the passage of time, which can be illustrated on a time line, similar to the number line that they already know.

Physical education and Outdoor Learning
Athletic activities require measurement of height, distance and time, while ideas of counting, time, symmetry, movement, position and direction are used extensively in music, dance, gymnastics and ball games.

Teachers plan opportunities to learn mathematics outdoors, when and where this is appropriate.

PSHE
Mathematics contributes to the teaching of personal, social and health education, and citizenship. The work that children do outside their normal lessons encourages independent study and helps them to become increasingly responsible for their own learning. The planned activities that children do within the classroom encourage them to work together and respect each other's views

These opportunities aim to demonstrate to children the importance of mathematics in their future lives and provide them with a real purpose for their learning.

Equal Opportunities

In all classes there are children of differing mathematical confidences. We recognise this fact and provide suitable learning opportunities for all children by addressing these needs. We achieve this by seating the children in mixed ability pairs, providing concrete materials for the children to manipulate and making full use of the mastery approach.

We use teaching assistants to provide appropriate support to individuals or to groups of pupils. Teaching assistants within Balderstone Primary School are viewed as an important 'asset' to the school and, as such, are appropriately involved in the planning and delivery of the mathematics curriculum. Their knowledge, skills and understanding is constantly updated through involvement in school-based and Maths hub work groups

At Balderstone St Leonard's, all teaching ensures that all pupils, irrespective of gender, ability, ethnicity and social circumstances have access to our mathematics curriculum and make the greatest progress possible. We believe that "everyone can" achieve in mathematics. Pupils are supported or challenged through deepen and strengthen activities and challenge activities. We aim to provide same day or next day intervention to prevent gaps from developing.
All teachers have a responsibility to ensure that individual pupil needs are met and progress monitored.

Teaching Mathematics to SEND children & AGT Children

At Balderstone Primary School we aim to provide a broad and balanced education to all pupils. We believe that all children can achieve. Quality First Teaching is considered an entitlement for all pupils. Effective formative assessment and tracking enables identification of pupils who may benefit from early, same day 'intervention' or further support, so that misconceptions can be addressed.

We also recognise, and aim to make provision for, pupils who have a particular ability in mathematics. These children are brought to the attention of the AGT and maths leads and work is planned according to their abilities.

Monitoring and Evaluation

Monitoring and evaluation in mathematics follows the school's monitoring and Evaluation policy. Monitoring of the standards of children's work and of quality of teaching in mathematics is the responsibility of the headteacher and the subject leader.

The work of the subject leader also involves supporting colleagues in the teaching of mathematics, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school

Assessment

Assessment is regarded as an integral part of teaching and learning and is a continuous process. It is the responsibility of the class teacher to assess all pupils in their class. We strive to make our assessment purposeful, allowing us to match the correct level of work to the needs of the pupils, thus benefiting the pupils and ensuring progress.

The assessment procedures within our school encompass:

- Short term assessments which include teacher's assessments of pupils' written work and performance on tasks, daily observations of pupils and informal discussions and questioning.
- Adjusting planning and teaching within units in response to pupils' performance;(use of short term assessments)
- End of unit assessments used as part of the Power Maths scheme.
- Medium term assessments which give children test experience and allow teachers to ascertain if the learning has been retained each half term.

- Using knowledge of pupils drawn from ongoing pupil tracking records and the progression document to inform 'prior learning' at the beginning of each unit of work to guide our planning and teaching;
- Use of ongoing teacher assessment in order to identify gaps in attainment on a half termly basis and at the end of each full term using this information to make judgements on a child's standard using the 'entering', 'developing' and 'secure' judgements;
- Use of information gained from statutory and optional tests. Analysis is done at both a quantitative and qualitative level. Information gained is used to set focused curricular targets (what to teach) and also to determine which strategies or methods are particularly effective in respect of specific areas of mathematics (the how and why).

Responses to children's work

We recognise the importance of responding to children's work, whether orally or in writing. We seek to encourage children by acknowledging positive achievements. This could include praise for use of a viable method even if the end results were incorrect. Children are frequently provided with next steps to support and enhance their understanding and make links between previous and future learning. Children are given opportunities, and actively encouraged, to explain their work to others and to display their work when it seems appropriate. They are encouraged to value and respect the work of others.

Our marking follows the school's 'Feedback and Marking Policy'

This policy will be reviewed within three years and updated as and when necessary.

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(NNW Maths Hub)
February 2025