BRETHERTON ENDOWED CE PRIMARY SCHOOL
Mathematical Policy

"Walking in the footsteps of Jesus with our Christian family, we learn, grow, achieve and flourish together in God's love"

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Date for review: 2 years time
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This policy is for Bretherton Endowed CE Primary School and The Hub, Bretherton Endowed Out of School Provision.

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.

This Maths and Calculation Policy has been produced in line with the 2014 National Curriculum for Mathematics and the New EYFS Statutory Framework 2021, to ensure consistency and progression in teaching throughout the school that is age appropriate and in line with current development.

Intent

At Bretherton Endowed CE Primary School we aim to teach children how to make sense of the world around them by developing their ability to calculate, reason and solve problems. This policy shows the natural progression that a child should make in their mathematical education. Children should not progress onto the advanced stages of formal written methods until they have a secure conceptual understanding. By the end of Year 6, children should be able to choose the most appropriate approach to solve a problem: making a choice between using jottings (an extended written method), an efficient written method or a mental method.Maths is a journey and long-term goal, achieved through exploration, clarification, practice and application over time. At each stage of learning, children should be able to demonstrate a deep, conceptual understanding of the topic and be able to build on this over time.

We aim to support children in achieving economic well-being by equipping them with a range of computational skills and the ability to solve problems in a variety of contexts by delivering a curriculum that:

- promotes enjoyment of learning through practical activity, exploration and discussion;
- develops confidence and competence with numbers and the number system;
- develops the ability to solve problems through decision-making and reasoning in a range of contexts;

- develops a practical understanding of the ways in which information is gathered and presented; to explore features of shape and space, and developing measuring skills in a range of contexts;
- helps children understand the importance of mathematics in everyday life.
- becomes 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.
- to reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language**.**

Implementation

Teachers are provided with Planning, Preparation and Assessment time (PPA) weekly in order to plan the specifics of their curriculum.

At our school, we teach mathematics to all children, whatever their ability or individual need. Through our quality first mathematics teaching, we provide learning opportunities that enable all pupils to make good progress. Every child has an equal right to be taught mathematics, in daily lessons of approximately 1 hour. There may be times when it is more appropriate for Foundation Stage to be a short session; Key Stage 1 sessions to be approximately 45 minutes in length and for Key Stage 2 sessions to be around 50 minutes.

At Bretherton, we use planning and resources from White Rose, Fluency Bee, NCTEM and Learning by Questions.

We aim for children to master the key areas and domains in Mathematics, narrowing the gap between the most and least able learners. 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 will always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly will be challenged to deepen their understanding by being offered rich and sophisticated problems and not accelerate through to new content.

Mathematics is a symbolic, abstract language. To decode this language, symbols need to come alive and speak so clearly to children that it becomes as easy to understand as reading a story. We believe that all pupils, when introduced to a key new concept, should have the opportunity to build competency in this topic by taking the concrete-pictorial-abstract approach.

Concrete – pupils should have the opportunity to use concrete objects and manipulatives to help them understand what they are doing.

Pictorial – pupils should then build on this concrete approach by using pictorial representations. These representations can then be used to reason and solve problems.

Abstract – with the foundations firmly laid, pupils should be able to move to an abstract approach using numbers and key concepts with confidence.

All classrooms have some concrete resources that can be used in the teaching of mathematics. Some more topic specific resources are located in the central store.

During our daily lessons we encourage children to count aloud, practice fluency, problem solving and reasoning skills and ask mathematical questions. We develop their ability to independently select and use appropriate concrete apparatus to support their conceptual understanding and

build procedural fluency. They have the opportunity to independently access and use a wide range of resources to support their work. We develop the children's ability to represent problems using visualisation skills, including jottings and pictorial representations. ICT is used in mathematics lessons for modelling ideas and methods. Wherever possible, we provide meaningful contexts and encourage the children to apply their learning to everyday situations. Although mathematics is best taught discretely, it has many cross-curricular links. Teachers need to use opportunities in other subjects to rehearse skills in a context. Mathematics involves developing confidence and competence in number work, geometry, measures and statistics and the using and applying of these skills.

Vocabulary and stem sentences are a key part of our maths education and pupils are encouraged to answer within stem sentences and using key mathematical vocabulary in their explinations and reasoning.

Impact

Pupils will leave us prepared for the next stage in their lives with:

● Quick recall of facts and procedures
● Fluent and competent in the fundamentals of mathematics
● The flexibility and fluidity to move between different contexts and representations of mathematics
● The ability to recognise relationships and make connections in mathematics
● The ability to reason mathematically by following a line of enquiry, understanding relationships and generalisations, developing an argument, justification or proof using mathematical language
● The ability to apply their mathematics to problems, with increasing sophistication including breaking down problems into a series of simpler steps and persevering in seeking solutions.

A mathematical concept or skill has been mastered when a child can show it in multiple ways, using the mathematical language to explain their ideas, and can independently apply the concept to new problems in unfamiliar situations and this is the goal for our children. These will be assessed through assessment, tracking, pupil progress meetings, performance management, moderation and standardisation

We measure the impact of our curriculum through the following methods:

- Assessing children's understanding of topic linked vocabulary before and after the unit is taught.
- Marking of written work in books.
- Problem solving nad reasoning assessments and conversations
- Using dialogue learning tasks to assess children's understanding.
- Summative assessment of pupil discussions about their learning.
- Images and videos of the children's practical learning.
- Interviewing the pupils about their learning (pupil book study).
- Moderation staff meetings where pupil's books are scrutinised and there is the opportunity for a dialogue between teachers to understand their class's work.
- External moderation of children's work at the end of each Key Stage.
- Formal reporting of standards at the end of each Key Stage.
- Annual reporting of standards across the curriculum to parents.
- Subject tracker

Special Educational Needs Disability (SEND) / Pupil Premium / Higher Attainers

All children will have Quality First Teaching. Any children with identified SEND or in receipt of pupil premium funding may have work additional to and different from their peers in order to access the curriculum dependent upon their needs. As well as this, our school offers a demanding and varied curriculum, providing children with a range of opportunities in order for them to reach their full potential and consistently achieve highly from their starting points. Concrete resources are available for all pupils and scaffolds are given to ensure staff can see learning in all mathematical areas.

Early Years

The Early Years Foundation Stage Curriculum feeds into the National Curriculum. It is good practice to make use of cross curricular links to enable children to use their learning in a real-life context. Therefore, pupils should be given plenty of opportunities within sessions to use and apply the mathematical skills and concepts they have learned.

All classrooms will have a display area specifically for mathematics. This is called a working wall and will display items that children need to support and develop the unit's learning. For example, key vocabulary, success criteria, models, key questions. In the Early Years' Foundation Stage there are also specific mathematical areas for children to access in their everyday learning.

Health and Safety

Equipment will be used safely and appropriately. Specifically:

- Short pencils on compasses
- Pupils will not lift heavy objects or multiple weights in excess of 5kg to avoid strain to back muscles.

Teachers are offered CPD where needed and teachers who are new to year groups will be supported to understand the mastery approach to mathematics.

Assessment

Assessment for Learning is fundamental to raising standards and enabling children to reach their potential. Assessment in mathematics takes place daily using a range of strategies such as feedback and marking of work and verbal discussions with children.

At Bretherton, teachers mark in pen. Incorrect answers may be identified and discussed with children where appropriate. Some wrong answers may be part of the process a child goes through to solve a complex problem. Children are then given time to respond to marking, usually with a teacher during daily practice. All corrected work is re-marked to ensure it is correct. Children may self/peer assess, which is completed in a different colour to their work, this allows them to have immediate feedback on their work.

Assessment of learning is formally completed termly through a pre and post assessment. In the first two terms and assessment is undertaken to enable the teacher to identify gaps and next steps. At the end of the year an assessment will be completed which reviews the whole academic years' objectives. Teachers use assessment information to inform their planning by using pre assessments. Children are formally tracked using our tracking grids. This data is used by the Mathematics Subject Leader, Senior Leadership team and Headteacher to review children against

Age Related Expectations based on their Key Stage starting points. Children who are not on track are identified for intervention/target teaching and discussed in pupil progress reviews.

Leadership and Management

The subject leader's role is to empower colleagues to teach mathematics to a high standard and support staff in the following ways:

- By keeping up to date on current issues; disseminating relevant information and providing training for staff members (either directly or through other professionals).
- Leading by example by modelling lessons or styles of teaching.
- Having a knowledge of the quality of mathematics provision across the school and using this to provide a coaching and mentoring role.
- Identifying and acting on development needs of staff members.
- Monitoring expectations, provision and attainment across the school and providing feedback to develop practice further in order to raise standards.
- Providing necessary equipment and maintaining it to a high standard.

Staff receive CPD linked to maths mastery delivered through White Rose Education, NCTEM and the Maths Hub we are linked to.

Monitoring and Evaluation

The quality of teaching and learning is monitored as part of the appraisal process through lesson observations and through the progress and attainment documents. In addition, continuity and progression across the school is monitored by the mathematics subject leader as is the implementation and impact of Assessment for Learning. The mathematics action plan and external advisors identify actions intended to raise standards.

The Mathematics Subject Leader will also provide an annual summary report to the Headteacher in which s/he evaluates the strengths and weaknesses in mathematics and indicates areas for further improvement.

A named member of the governing body is briefed to oversee the teaching and learning of mathematics. The mathematics governor meets, at least termly, with the subject leader to review progress.

Partnerships with parents

In September parents are invited to attend a 'meet the teacher' meeting where they are informed of school priorities and year group overviews. Also, parents are informed on how they can help child at home by attending English and Mathematics workshops. Parents are kept informed of topics that are being covered through a knowledge organiser sent half-termly. During Parents' Evenings curricular targets are shared and a written report is completed annually in the Summer Term. Homework is set each week.

Adopted by the Governing Body of Bretherton Endowed CE Primary School.

All aspects of our policy intends to comply within the Data Protection (GDPR) legislation.