



# Maths Policy

September 2023

# **MATHEMATICS POLICY** **BAINES ENDOWED SCHOOL**

## **THE NATURE OF MATHEMATICS**

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. It also provides the materials and means for creating new and imaginative worlds to explore.

Using the Programmes of Study in the National Curriculum it is our aim to develop:

- A positive attitude towards Mathematics and an awareness of the fascination of Mathematics.
- Competence and confidence in mathematical knowledge, concepts and skills.
- An ability to solve problems, to reason, to think logically and to work systematically and accurately.
- Fluency in Mathematics where pupils take a flexible approach to make and justify decisions and use what they know and understand to solve problems. This includes knowing when it is appropriate to use different methods.
- Initiative and an ability to work both independently and in cooperation with others.
- An ability to communicate Mathematics.
- An ability to use and apply Mathematics across the curriculum and in real life.
- An understanding of Mathematics through a process of enquiry and experiment.

## **SCHOOL POLICY AND THE NATIONAL CURRICULUM**

### **Knowledge, skills and Understanding**

At Key Stage 1 and Key Stage 2 teachers use the new National Curriculum to ensure that age related objectives outlined in the Programme of Study are being taught. The progression of skills that the children follow is outlined in

Lancashire's Red Rose Mastery Scheme in arithmetic, reasoning and problem solving.

### Breadth of Study

Through careful planning and preparation, we aim to ensure that throughout the school children are given opportunities to develop a positive attitude to Mathematics through:

- Practical activities, investigations and mathematical games using both the indoor and outside school environment
- Problem solving
- Individual, group and whole class discussions and activities
- Open and closed tasks
- A range of methods of calculating e.g. mental, pencil and paper and using a calculator
- Working with computers/ipads/recording tools as a mathematical tool
- Linking Maths to the wider environment

### SCHEME OF WORK

Our school scheme of work is developed from the National Curriculum and takes into consideration the needs of our children. As a Lancashire school, we follow the long term overview that is provided by the Lancashire Maths team and follow their Red Rose Mastery Scheme in Years 1 - 6. The class teachers adapt and personalise the lesson plans and resources that are provided by this comprehensive scheme.

### CROSS CURRICULAR ISSUES

Throughout the whole curriculum, opportunities exist to extend and promote Mathematics. Teachers seek to take advantage of all opportunities, especially in Science and ICT. Other subject and community links to Mathematics are actively encouraged in the development of a creative curriculum.

## **TEACHERS' PLANNING AND ORGANISATION**

Each teacher is responsible for the planning, teaching and assessment of Mathematics in their class - with guidance from the Mathematics co-ordinator where it is needed. Staff are also actively encouraged to personalise and adapt the materials and planning provided in the Red Rose Mastery Scheme.

The approach to the teaching of mathematics within the school is based on three key principles:

- A Mathematics lesson every day.
- A clear focus on direct, instructional teaching and interactive, oral work during whole class teaching and during guided group work.
- An emphasis on mental calculation to improve fluency in Maths.

In each class there is a daily lesson of between 45 and 60 minutes in Mathematics, which is supplemented in Key Stage 2 classes with regular fluency tests in Maths.

Class teachers in Years 1 to 6 follow the units of work outlined by the Lancashire Maths Team which follow the new National Curriculum and personalise detailed lesson plans that are provided by the Red Rose Mastery Scheme. Each weekly plan outlines learning objectives and indicates prior learning and vocabulary. There is also a balance of arithmetic, reasoning and problem solving activities with an emphasis on variation in the way that the questions are presented. There is a clear progression in skills and knowledge as outlined in the Lancashire's Red Rose Mastery Scheme.

All of these classes annotate the half term planning sheet which is provided by the Lancashire Mathematics team on the Lancashire website.

The teacher in the Reception class bases her teaching on the NCETM materials to cover the Number and Numerical Patterns Early Learning Goals. Towards the end of Reception, teachers aim to draw the elements of the daily Mathematics lesson together so that by the time children move into Year 1 they are familiar with the structure of a 45 minute lesson.

## **MASTERY APPROACH AND DIFFERENTIATION**

At Baines we use the mastery approach in Lancashire's Red Rose Scheme which means that we aim for all of our pupils to acquire a deep, long-term, secure and adaptable understanding of the subject. Achieving mastery means acquiring a solid enough understanding of the maths that's been taught to enable pupils to move on to more advanced material.

All of our pupils should be given the opportunity to access the teaching and learning of Maths for their own year group. The only exceptions are where children have a specific diagnosed learning need in Maths and they may receive an individualised Maths curriculum, where necessary. Teaching for mastery involves giving children fair access to the five key elements of coherence, representation and structure, Mathematical thinking, variation and fluency in Maths lessons.

With the mastery approach, differentiation happens through the support and intervention provided to different pupils, not through the topics taught. Differentiation is now achieved through setting different levels of challenges - which are all set at age related expectations- for the children to work through in a tiered structure. The questioning and scaffolding individual pupils receive in class as they work through the problem differs, with higher attaining pupils being challenged through more complex problems which deepens their knowledge of the same content.

In this mastery approach, those pupils who have trouble grasping new concepts in the lesson need immediate intervention so that the whole class can be kept together working on the same material and learning at broadly the same pace in the next lesson, and over time. Ideally, immediate intervention should be given on the same day, normally as individual or small group support, with a teaching assistant to address any misconceptions.

More able children will be provided with challenging enrichment activities that give a valuable learning experience but, crucially, does not move them on to new mathematical ideas.

By developing a blend of in-school and distance learning, teachers can support students and help to individualise learning, increase learners' autonomy, motivation and agency and improve learning skills towards becoming self-directed learners. To do this in Maths, teachers will set and respond to tasks using online platforms such as Purple Mash, Class Dojo and Times Table Rock Stars. These will be used as homework or work to be completed in school.

Teachers will share videos with parents/carers and children to introduce new units of work. These will highlight learning from previous year groups (where applicable) and the skills that children will have used before and are to build upon. Key vocabulary to be used in the forthcoming unit and skills to be developed will also be introduced.

## **CHALLENGING ALL CHILDREN**

Children with S.E.N. are taught the daily Mathematics lesson and are encouraged to take part when and where possible.

Where applicable, children's I.E.P's incorporate suitable objectives from the Primary Framework for Mathematics and teachers keep these objectives in mind when planning work.

When additional support staff are available to support groups or individual children, they work collaboratively with the class teacher and their role is identified clearly on weekly plans.

Within the daily Mathematics lesson, teachers not only provide activities to support children who find Mathematics difficult but also activities that provide appropriate challenges for children who are high achievers in Mathematics. All of the children are encouraged to select the most appropriate challenge for their level of ability – with guidance from the teacher where necessary.

## **INTERVENTION GROUPS**

Teachers will identify regular target groups for daily Mathematics support that will usually be led by teaching assistants. These groups will be fluid as they will change according to the needs and topics of the class. Often the focus will be on basic numerical calculations and recalling important facts. Ideally, intervention will be immediate to have the greatest level of impact.

Where particular weaknesses are identified, trained teaching assistants will use Individual Numeracy Support to assess then teach the relevant units on a 1:1 basis.

## **EQUAL OPPORTUNITES**

We incorporate Mathematics into a wider range of cross-curricular subjects and seek to take advantage of multi-cultural aspects of Mathematics. We are aware of gender issues with regards to Mathematics and take these issues into account both at the planning and moderation stages.

In the daily Mathematics lesson, we aim to support children with English as an additional language in a variety of ways such as repeating instructions, speaking clearly, emphasising key words, using picture cues, playing mathematical games and by encouraging children to join in counting, chanting and rhymes etc.

## **PUPILS' RECORDS OF THEIR WORK**

Children are taught a variety of methods for recording their work and they are encouraged and helped to use the most appropriate and convenient method. There are occasions when it is both quick and convenient to carry out written

calculations. It is also important to record aspects of mathematical investigations. However, before resorting to a written algorithm, children are encouraged to use mental strategies.

At Baines it is important that children develop fluency in Maths. Fluency is the ability to work accurately, efficiently and flexibly. This includes the ability to:

- recall and use number facts and procedures accurately;
- make appropriate decisions regarding the most effective strategy for a given situation;
- move confidently between different representations of the same concept;
- recognise the mathematics when presented in different contexts.

Fluency involves looking for patterns and relationships, logical reasoning and making connections. Children need to understand why they are doing what they are doing and know when it is appropriate to use different methods.

### Exercise Books for Recording

It is school policy that the following pattern is used:

- Reception: plain exercise books
- Year 1 and 2: exercise books of 1cm squares
- Year 3 and 4: exercise books of 1cm squares
- Year 5 and 6: exercise books of 7mm squares

All children are encouraged to work tidily and neatly when recording their work. When using squares, one square should be used for each digit. When involved in routine practice of calculations, the children are encouraged to create two columns for answers.

### MARKING

In Mathematics most written calculations will be marked by the teaching staff. Live marking is actively encouraged to provide immediate feedback and allow the opportunity for corrections to take place. To ensure that high quality of

marking takes place, the teacher will indicate where the error has occurred and will add in further explanation/challenges where necessary. Children will be expected to complete their corrections using purple pen. Occasionally, individual children will require further support from the teacher or teaching assistant to correct misconceptions. Marking will indicate where adult support has been given.

The children can mark exercises which involve routine practice, with support and guidance from the teacher. Where appropriate, children in Years 5 and 6 are encouraged to check computational exercises with a calculator and seek help if they are unable to locate/correct their errors.

## **ASSESSMENT AND RECORD KEEPING**

Teachers are expected to make regular assessment of each child's progress and to record these systematically.

As part of their everyday teaching, teachers are constantly making judgements and assessments about the children they teach. Assessment forms an essential part of teaching and learning in Mathematics in the classroom as class teachers and assistants will be involved in observing and collecting evidence so that accurate teacher assessments for each pupil can be made. Assessment of fluency in Maths should include whether children take a flexible approach and make appropriate decisions to select the most efficient method, based on what they notice and what they already know and understand.

The class teacher will regularly update a KLIPs grid to show when the class have achieved particular objectives. Individual children, who have further special educational needs, will have a KLIPs grid of their own that is kept updated by the teacher.

More formal methods of assessment take place regularly to assess arithmetical fluency, reasoning and times tables knowledge. Children in Year 3 to Year 5 complete Testbase tests at the end of each term in Maths.

Children in Year 2 and 6 are also formally assessed each May using the statutory and non-statutory tests provided by the government. These form the basis of the analysis of strengths and weaknesses throughout the school, which informs future training needs. This analysis is the responsibility of the Maths co-ordinator.

At the end of each term every teacher enters data into the Lancashire Pupil Tracker to indicate whether each child is achieving the expected standard in Mathematics. Additional information about more specific attainment in Maths is inputted onto the Lancashire Pupil Tracker each term based on progress on their KLIPs grid for Maths.



Pupils in every class are actively involved in self-assessing their own performance against weekly group targets and contribute towards their 'next step forward'.

## **RECORDS OF ACHIEVEMENT / COLLECTING EVIDENCE**

Every year the class teacher collects samples of Maths work electronically to show evidence of the expected standard and deeper learning within the expected standard in Maths for that particular year group.

## **REPORTING TO PARENTS**

Parents are invited into school twice a year to look at their children's work and discuss their child's progress.

Class teachers' are required to evaluate each child's attainment in Mathematics in an annual report to parents where parents are informed whether their child is worked at the expected standard, at greater depth, working towards or working below the expected standard for their year group. Reports are completed before the end of the summer term and opportunities are provided for parents to discuss their child's general progress by returning a written comment to school or by meeting with the class teacher

In the summer term, parents of children in Years 2 – 6 are also informed whether their child has met end of year expectations for their year group.

When significant changes have been/are made to the Mathematics curriculum, parents are invited to a meeting or sent information via the half termly newsletter. Parents are also be invited into their child's class to share learning in Maths when more challenging concepts are covered or examples are posted on Class Dojo.

## **MONITORING AND EVALUATION**

Curriculum Release time is used to monitor and evaluate the quality and standards of Mathematics throughout the school and enables the co-ordinator to support teachers in their own classroom. Planning is monitored by the co-ordinator each term along with samples of books from each ability group.

Opportunities are provided for teachers to review the scheme, policy and published materials during staff meetings.

## **STAFFING AND RESOURCES**

### **Practical Resources**

An extensive range of mathematical resources are stored centrally and labelled clearly on the Key Stage 2 corridor. This area is easily accessible to all staff and children and allows them to become familiar with these resources. A list of resources is circulated to staff once a year and a copy is available in the Maths resource area. Class teachers are given the opportunity to decide on their own needs for further Maths resources each year.

Additional resources, which are year group specific or are used regularly, may sometimes be kept separately in classrooms.

INSET training and in-house training during staff meetings largely caters for the mathematical development of staff. The co-ordinator monitors Maths courses that are available each term and books individual teacher's onto courses according to their needs. The co-ordinator regularly attends cluster and training courses and shares key messages with staff.

A Subject Action Plan for Mathematics is written once a year and is shared in a staff meeting. These objectives are evaluated at the end of each school year.

## **HOMEWORK**

It is our school policy to provide parents and carers with opportunities to work with their children at home. These activities may only be brief, but are valuable in promoting children's learning in Mathematics.

Activities are sent home on a regular basis (see separate school Homework Policy) and take the form of number games and tasks with some formal exercises for older children.

Policy reviewed – September 2023

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