

Introduction:

This policy outlines the teaching, organisation and management of the Mathematics which is taught at Barnby Dun Primary Academy. The school's policy for Mathematics is based on the document 'Framework for Teaching Mathematics from Reception to Year 6'. This policy has been developed as a result of staff discussion and has the agreement of the Governing body. The implementation of this policy is the responsibility of all the teaching staff.

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 identify, understand and appreciate relationships in number and space in their everyday lives. All children should be motivated to learn by a rich, creative, enjoyable curriculum related to their individual needs and the wider requirements of society. In our work in Mathematics, we are always striving for excellence and want to inspire the children to do the same.

We aim for each child to:

- Have a positive attitude towards Maths as an interesting and attractive subject, in which they gain success and pleasure
- Have self-confidence in their approach to Mathematics
- Be able to work systematically, co-operatively and with perseverance
- Be able to think clearly and logically, with independence of thought and flexibility of mind
- Experience a sense of achievement regardless of age or ability
- Understand the appropriate skills, concepts and knowledge of number, shape, space and handling data
- Be able to apply acquired skills to new situations both in and out of school, and subsequently, in adult life
- Understand and appreciate pattern and relationships within Mathematics
- Be able to communicate with peers and adults, ideas, experiences and questions, clearly and fluently, using the appropriate mathematical language
- Be able to explain reasons for own ideas, thoughts, findings and conclusions
- Be able to explore problems, in a range of contexts, choosing appropriate and efficient strategies, making predictions and deductions
- Develop an appreciation of the creative aspects of maths and an awareness of its aesthetic appeal
- Be aware of Mathematics beyond the classroom – 'Real Life context'
- To master objectives within their year group and deepen their understanding of their year groups topics.

We aim for parents to:

- Be actively involved in their children's mathematical learning both in school and at home
- Understand and support the school's Mathematics and Homework policies

In order for parents to have a positive input into their child's attainment, we believe there should be good communication between home and school. For example curriculum workshops are provided in each year group at the start of the autumn term to help parents familiarise themselves with the strategies their children will be using within that curriculum year. Also information is sent home at the start of each term and parents are informed of **end of year expectations** at Parent's Evenings.

Equal Opportunity

We are committed to providing a teaching environment conducive to effective and active learning. Each child is valued, respected and challenged regardless of ability, race, gender, religion, social background, culture or disability. A pupil consultation group will meet every half term to be given the opportunity to express their opinions about maths in school. The children will also be given roles to actively heighten the profile of maths in school e.g. the organisation of a maths challenge board.

Planning, Assessing and Teaching Mathematics

Mathematics is a core subject in the National Curriculum and we use the 2014 National Curriculum and 2012 EYFS as a basis for implementing the Programmes of Study for Maths. Our planning always takes account of the diverse and changing needs of our pupils. Planning takes place at three connected levels: long, medium and short term.

Long term planning is taken from the **White Rose Maths** Hub which outlines the yearly teaching programmes and key objectives from Reception to Year 6.

Medium term plans outline the **small steps within each unit of work** and the main teaching objectives and when you will teach them.

Short term plans are weekly notes on how each lesson will be taught, detailing the objectives, tasks, activities and groupings of children for the three main parts of the lesson. They include notes on resources, vocabulary, homework, use of LSA support and differentiation. Teachers are flexible and must adapt their planning to meet the needs of the children in the class. **Teachers will aim to follow a mastery approach where children will deepen their understanding of an objective through varied fluency, reasoning and problem solving.** The school's calculation policy will be used by teachers to support the implementation of the 2014 National Curriculum.

Teaching time

To provide adequate time for developing maths skills, each class teacher will provide a daily mathematics lesson. This may vary in length according to the age and ability of children, but will usually be about 45 minutes in Key Stage 1 and 60 minutes in Key Stage 2. In foundation stage children are encouraged to use skills developed in maths lessons as they follow their own interests and fascinations in 'free flow' sessions every day. **There are also more structured Maths lessons on a regular basis from September.**

A typical lesson

A typical 45-60 minutes in Year 1-6 will be structured like this:

- Oral work and mental calculations (5 – 10 minutes)

This will involve the whole class to rehearse, sharpen and develop mental and oral skills.

- The main teaching activity (30 – 40 minutes)

This will include both direct, focused teaching input and pupil activities. Teachers should ensure a balance between individual, paired, group and whole class activities and tasks. Independent groups may be mixed ability, depending on the nature of the task. The teacher will have different focus groups at different points in the lesson. There will be a balance between teacher 'talk' and pupil 'talk'. Teachers make selected, critical use of published material.

- A plenary (5 – 10 minutes)

This will involve bringing the class back together to identify progress, summarise key facts, reinforce, discuss misconceptions, make links to the next lesson and celebrate success. It may be an effective strategy to bring the class together in other parts of the lesson to clarify teaching points or give further direction. Children in KS2 will use part of the plenary to self-assess their understanding of the lesson objectives.

Homework

The daily maths lesson will provide opportunities for children to practise and consolidate their skills and knowledge, to extend their techniques and strategies and prepare them for future learning. These may be extended through homework activities, which will be short, carefully planned activities and will be referred to, built upon valued in future lessons. (See Homework Policy)

Teaching and Learning styles

The school uses a variety of teaching styles to cater for the variety of learning styles of our pupils. Our principle aim is to develop the children's knowledge, skills and understanding in mathematics. We do this through a dedicated, daily lesson that has a high proportion of whole class and group teaching. We encourage children to ask as well as answer a range of questions. They use a variety of resources that help them learn in a visual, auditory or kinaesthetic way, following the process of 'Concrete to pictorial to abstract ideas'. Children use ICT to enhance their learning. Wherever possible, we encourage the children to use and apply their learning in everyday, meaningful situations. Mathematical displays stimulate questions, provide reference or celebrate success.

In all classes there are children that learn in different ways. We embrace this fact and aim to 'personalise' the maths curriculum by closely matching the challenge of the task to the ability of the child. We achieve this through a range of strategies – in most lessons through differentiated group work and in other lessons by organising children to work in pairs on open-ended investigations of games. We use LSA's to support some children and extend others. Where necessary, children are taught in ability sets.

Where appropriate teachers will use make use of our outdoor space including 'Barnby Woods' to explore mathematical concepts and skills.

Responses to children's work

We recognise the importance of responding to children's work in positive way, whether orally or in writing. We encourage children by highlighting and promoting achievements. This could include praising a child for using an appropriate strategy even if the end result wasn't correct. Stickers, stamps, Dojo points and certificates are used to reward good effort or achievement. Children are given many opportunities to explain their work to others and to show their work when it is appropriate. They are encouraged to value and respect the work of others. Children will use blue pen to show corrections or improvements to their work on a regular basis. In Foundation, the plenaries are often used as a review time where children explain their task.

ICT

ICT is used in a variety of ways to support teaching and motivate children's learning. ICT will include calculators, Interactive teaching programs, use of maths websites e.g. My Maths, Revisewise and maths games on CD-rom. ICT is used in the daily maths lesson when it is the most efficient and effective way to meet lesson objectives.

Cross-curricular links with Mathematics

Maths contributes to many subjects within the Primary Curriculum and where possible, children will use and apply mathematics in cross-curricular contexts.

English – Mathematics actively promotes the skills of reading, writing, speaking and listening. For example, younger children enjoy stories and rhyme that rely on counting and sequencing and older children encounter graphs and charts when using non-fiction texts.

Science - almost every science investigation is likely to require one or more of the mathematical skills of counting, measuring, estimating, calculating, recording in tables and charts.

Art and Design – measurements are often needed, many patterns and constructions are based on properties of shapes and spatial ideas. Designs need enlarging or reducing. When food is prepared a great deal of measurement is required.

History, Geography and RE – in these subjects children may collect data and make measurements of many kinds. The study of maps includes the use of co-ordinates and ideas of angle, direction, position and ratio. The pattern

of the days of the week and the calendar have a mathematical basis. Time lines are used in a similar way to the number lines they use regularly.

PE and Music – Athletic activities require measurements of height, time and distance while ideas of counting, direction and symmetry are used extensively in music, dance, gymnastics and ball games.

PSHCE – The work that children do outside their normal lessons encourages independent study and help them become responsible for their own learning. In class, children are encouraged to work together, discuss ideas and respect each other's views.

Assessment (see assessment policy)

Assessment will take place at three connected levels: Short term, medium term and long term. These assessments are used to inform teaching in a continuous cycle of planning, teaching and assessing.

Short term assessments will be an informal part of every lesson and may be done through questioning or observation. The purpose is to check children's understanding which will enable teachers to adjust day to day lesson plans, plan the 'next steps', so that work is pitched appropriately and matched closely to individual's needs. They are recorded on Class Track. Pupils will use feedback from teachers to set Maths targets, practice and review them on a regular basis.

Medium term assessments will take place regularly in each term using Non-Statutory papers. Teachers will also update progress using O'Track every half-term. They will assess children's progress against the key objectives that have been covered. Teachers will use these assessments to help organise groups and further intervention that is needed. Assessment and progress is discussed at Pupil Progress and this information and data is then used by Phase Leaders, SEN Leader and Assessment Leader to inform SLT of any area for development.

Long term assessments will take place towards the end of the school year to assess and review pupil progress and attainment. These will be made using compulsory National Curriculum tests for Year 2 and 6 and the optional test for Year 3 to 5. Children's responses to each question in the tests will be analysed to provide information about strengths and areas for improvement, and this information will be used formatively by the next teacher. All relevant assessment information is passed to the teacher in the cohort file. The Year 6 teacher ensures that assessment information is shared with the secondary colleagues to ensure further progression in Year 7.

Target setting – By combining teacher assessment, results of ongoing formative assessments and summative assessments, children are set numerical targets in July to assist the receiving teacher as part of their report. These are reviewed and adjusted when necessary. Each child will be given a new target in their maths target book. Children will be given time to work on their individual targets each week to ensure progression and continuity. 66 Table Facts have been introduced throughout KS1 and KS2 to promote knowledge of table facts to 12 x 12. Children will be given the chance to regularly practice and keep track of their progress through a classroom display.

Special Educational Needs

We aim to embed our policy for S.E.N. into all aspects of planning, teaching and assessing across the curriculum. We maintain high expectations for all pupils and are committed to providing a broad, stimulating, inclusive maths curriculum which challenges all children. Teachers will aim to include all children fully in their daily mathematics lessons. All children benefit from the emphasis on oral and mental work and participating in watching others demonstrating and explaining their methods. Class teachers plan work carefully to ensure learning opportunities are matched to the needs of the pupils' abilities. Teachers will consider the needs of children who are less able, slightly below 'expected' level (target group), 'On Track' and more able, and involve all pupils through differentiation. Children will be given extra intervention to support and extend Mathematical knowledge/thinking where appropriate.

How we work in EYFS (Early Years Foundation Stage)

Mathematics in the Foundation Stage is taught through a holistic approach. Children are taught mathematical concepts through daily lessons and are provided opportunity to practise, consolidate and embed key skills throughout the Foundation Stage Curriculum.

Teaching is based on the EYFS framework which prepares children for starting the National Curriculum in Year 1.

Teaching and Learning provides many multi-sensory opportunities to develop an understanding of number, calculating, problem solving, pattern, measures and shape at a developmentally appropriate level.

Practical activities allow children to develop fluency; enjoying, exploring, practising and developing mathematical vocabulary.

A typical lesson will be planned as follows;

- Mental/Oral introduction (sometimes as a whole class, other times as groups to best match children's needs)
- An introduction with the whole class on the main mathematics topic for the day.
- Differentiated group activities where children develop working independently or with adult support.
- A plenary (sometimes as a whole class, other times as groups to best match children's needs) This allows children the opportunity to share their learning.

Resources

Each class has access to a large amount of practical equipment, with some resources stored centrally.

The management of Mathematics

Role of the Subject Leader:

- To provide a strategic lead and direction for Mathematics, driving the subject forward in an aim to raise standards
- To embrace new initiatives and make them work for our school and our children
- To be enthusiastic about maths and demonstrate good practice / be a good role model / lead by example
- To monitor and evaluate the quality of teaching and learning through observations, displays, pupil interviews, work samples
- To promote and ensure the National Curriculum is adopted throughout the school
- To ensure all staff have a 'shared vision' of how we aim for maths to develop throughout the year (SIP)
- To deliver INSET covering DfE requirements for maths training
- To review the provision of maths resources regularly and purchase new resources to support teaching and learning
- To revise the school's written policy in light of new initiatives and developments
- To work closely with the Assessment Leader to review assessment procedures and their impact on pupil attainment
- To look termly at work and plans for each year group to have an overview of teaching throughout school
- To monitor standards of children's work with samples from each class
- To provide support, guidance and advice for staff, sharing ideas and informing them of current developments

Barnby Dun Primary Academy Mathematics Policy

- To be aware of national developments in maths through reading relevant materials and attending courses
- To liaise with local schools in order to share good practice
- To further parental involvement and knowledge by facilitating support and advice through Curriculum evenings and disseminating written information
- To audit current practice at the start of the Autumn term and produce a detailed action plan for the year which links in with the priorities in the SIP
- To work to achieve equality of opportunity throughout school
- To provide the Governor's Curriculum Committee with regular updates about the developments in maths and discuss targets and SATs results with the full Governing Body
- To liaise with the named Governor for Mathematics
- To be committed to the Professional development of all staff so that provision for children can further improve e.g. mentoring new staff

Role of the Headteacher

- To lead, manage and monitor the implementation of the Curriculum, including monitoring the quality of teaching in all classes
- With the maths governor, keep the governing body informed about the progress of the strategy
- Ensure that Maths remains a high priority in the SIP
- Deploy staff to maximise the support for the Curriculum.

R. Pearson, N Walker, A Nettleton

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