



Be the best you can be!

Maths Policy

Ratified by Governors:

Review Date:

Member of Staff responsible: Tom Crook

Introduction

This policy outlines the teaching, learning, organisation and management of mathematics at Bush Hill Park Primary School. The policy is based on the expectations and aims of the 2014 National Curriculum for Mathematics and the recently updated Early Years Development Matters document.

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solutions to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject. (National Curriculum 2014)

Aims:

Maths teaching should contribute to the acquisition of life-long skills and promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion.

We aim to develop lively, enquiring minds, encouraging pupils to become self-motivated, confident and able to solve problems.

The National Curriculum for Mathematics aims that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasing complex problems over time, so that pupils have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems.
- **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.

Objectives:

During their time at Bush Hill Park School we want children to see how mathematics can help them become better equipped for future life. As a result of their learning in mathematics and problem solving across the curriculum, children will be better prepared for applying their skills effectively in everyday situations, in their future learning and in the work place.

CURRICULUM PROVISION

Nursery:

The programme of study for the Foundation stage is set out in the Statutory framework for the Early Years foundation stage (EYFS). Children are provided with daily opportunities to develop their understanding of number, measurement, pattern, shape and space through play and practical activities that allow them to enjoy, explore, practise and talk confidently about mathematics. In addition to group activities, whole class learning takes place allowing the teacher to introduce and develop mathematical concepts. In light of the global pandemic and the effect this has had on our school community, we have tailored planning and provision to best suit the needs of the pupils arriving as well as understanding the destination; offering them the best possible opportunity to meet and exceed national expectations at the end of the Key Stage milestones.

Reception and Year 1:

In order to shape learning and ensure progress and attainment in Mathematics, children in Reception and Year 1 are taught using the best parts of Maths Mastery, Teaching for Mastery (Maths hub), NCTEM (Ready to progress) and White Rose Hub. We work closely with the NCETM – Maths Hub; in providing a high-quality, forward-thinking approach to planning and delivering the teaching and learning for this subject. Furthermore, we realise the importance of reducing the cognitive load and breaking down key concepts into more purposeful segments of teaching and learning. This measured approach has never been so vital. Throughout the school and in particular Year 1, we have facilitated necessary changes and worked collaboratively with staff to consolidate the vision moving forward. We follow bespoke LTPs and MTPs created by the Maths lead in accordance with what best suits the needs of our children specifically. This involves diving deeper into subject areas, spending more time gaining a deeper understanding of concepts, specifically those involving number.

Years 2 – 6:

The Programmes of study for mathematics are set out year by year for Key Stages 1 and 2 in the new National Curriculum (2014). Pupils should make connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. Learning is organised into lengthier blocks of time, to allow for depth of coverage, stretch and challenge and consolidation. Each year group follows the bespoke LTP and MTPs that have been designed and sequenced, by the Maths Lead (through consultation with Pam Fernley- HMI Inspector/Maths consultant) to meet the needs of our pupils. Certain key units (Place Value, four operations) are revisited half termly to ensure fluency, the retention of knowledge and the depth of understanding. As of September 2021, we embarked on our 4th year with the NCETM, with support from a working hub we have been able to implement and measure the impact of adapted principles and approaches (as outlined in the BHP maths mantra). We now enter our fourth year working alongside the maths hub, this is known as the ‘sustaining year’ for all collaborators.

The Key features of our programme are:

Representation and structure:

Children use concrete manipulatives (objects) and pictorial representations (pictures), before moving to abstract symbols (numbers and signs). All lessons are structured to meet the needs of the class (can vary depending on need in EYFS) and must include: fluency, problem-solving and reasoning, some principles of Maths Mastery and elements of Teaching for Mastery as outlined by the NCETM and adapted for our school by the Mathematics lead. Children will be encouraged to show and record their understanding in a variety of different ways. Pupils are exposed to different representations and models; which helps them to grasp concepts, explain concepts and apply concepts to unfamiliar contexts.

Language development & communication:

The way that children speak and write about mathematics has been shown to have an impact on their success. We use a carefully sequenced, structured approach to introduce and reinforce mathematical vocabulary. Every lesson includes opportunities for children to discuss and explore their mathematical reasoning using full sentences that include relevant mathematical vocabulary; this aims to develop fluency and deepen their mathematical understanding. We are also developing how we encourage children to write mathematically with confidence. This aims to enhance their literary skill-set as well as bolster their mathematical vocabulary and reasoning skills.

Fluency:

Fluency and recalling mathematical facts is an integral part to our teaching and learning. Each lesson will contain carefully designed fluency practice; this enables learners of all abilities to access and understand specific mathematical patterns and facts. Recalling with confidence and making connections shows a deeper understanding of the concept being taught. This level of retained fluency is what we aim for and build upon- through differentiation, scaffolding and targeted support we are able to provide this opportunity for all learners. Speed and competency are assessed formatively (fast feedback) and through summative means during assessment week (arithmetic and reasoning tests). Other low-stakes quizzes are carried out in timely fashion, these afford teachers and support staff immediate feedback on recent teaching and the knowledge retention and application grown. The TTRockstars learning platform enables both pupils to practice their Multiplication facts, compete against others, and for teachers to assess the pupils' understanding and competency of these proficiencies. This platform is used in KS2 only.

Problem solving:

Mathematical problem solving is at the heart of our approach – it is both how children learn mathematics, and the reason why they learn mathematics. By accumulating knowledge of mathematical concepts, children can develop and test their problem solving skills within a wide range of contexts. Problem solving tasks and challenges are provided and solved alongside the Master’s Glasses reasoning strands. This means children apply their skills in solving the problem as well as justifying their reasons for and why when addressing the Master’s Glasses strand (explain it, evaluate it, convince me, prove it, use it).

Reasoning:

Mathematical reasoning is a skill at the very core of our teaching and learning at Bush Hill Park. We recognise that confident reasoning can come in many forms including through pictorial, concrete, abstract, verbal or written means. We aim to promote accomplished, confident and resilient reasoners. Every year, we organise maths themed weeks that give opportunities for children to practice skills within familiar and unfamiliar contexts. Reasoning at our school is linked in accordance with Teaching for Mastery and the NCETM. The mastery strands of ‘mathematical thinking’ and ‘variation’ are areas of particular focus, as we aim to create competent communicators and curious learners who can make connections and links to prior learning confidently. As of September 2021, we have introduced the Master’s Glasses, which focuses on a daily strand of reasoning. These areas involve; explaining, evaluating, proving, convincing and using. All of which enables the pupils to become critical curious mathematicians.

Teaching and Learning:

The approach to the teaching of mathematics within the school is based upon a daily mathematics lesson. In all classes there are children of a wide range of mathematical abilities. We recognise this and provide suitable learning opportunities and challenge for all children, irrespective of their aptitude. Where it is deemed appropriate, some year groups (Year 2, 5 and 6) may be set by ability for some or all of their mathematics lessons. We aim to work in partnership with parents/carers; with maths workshops held with pupils and parents of Early Years and KS1. During these workshops, children have the opportunity to work alongside their parents by playing maths games which they can then, in turn, play at home to reinforce understanding. There are further opportunities for children to hone and consolidate their mathematical knowledge and skills during Maths Meetings, arithmetic slots and daily soft- start activities. Due to the pandemic, maths workshops have been put on hold, however we aim to reinstate them once it is deemed safe enough for parents to attend on mass.

Planning:

Planning for mathematics begins from a thorough understanding of children’s needs which comes through effective and rigorous assessment, tracking and monitoring; combined with high expectations for all children to achieve. Our medium-term mathematics plans outline the main teaching objectives for each half term and are organised into different sized units, depending on the need or demand. These units are meticulously planned in line with our ‘non-negotiable practice’ and maths mantra. The units of work ensure an appropriate balance and distribution of work across each term and ensure coverage of the National

Curriculum, whilst recognising priority based on gaps and prior assessment outcomes. Year group planning meetings (PPA) are used to discuss the curriculum, expectations, pedagogy, differentiation, assessment and to ensure a consistency of approach and standards as per the professional standards for teachers document. Planning and links to content coverage within books may also be discussed during phase meetings. Within short term planning, clear success criteria are outlined; as are daily learning objectives, assessment opportunities, opportunities for fast feedback and provision for support and challenge. Where possible, planning for mathematics should include real life contexts and problem solving; as well as clear consideration for fluency, reasoning and collaborative learning opportunities. In response to our most recent OFSTED report (December 2017) we will be focussing heavily on raising the standard of teaching and learning to ensure the more-able mathematician is stretched, challenged and has the opportunity to deepen their conceptual understanding in all areas of the mathematics curriculum. As of March 2020, this still remains a subject-based priority for school improvement.

Assessment:

Assessment for Learning (AFL) is regarded as an essential part of teaching and learning and is a continuous process which is shared with all learners. All class teachers are committed to raising standards of attainment through AFL and are responsible for the assessment of all pupils in their class. This is achieved through questioning, quizzes, fast feedback, plenaries, online summative data (Times Table Rock Stars) and end of unit/term summative assessments. Learning objectives and individual targets are shared and discussed with the children during fast feedback, assessment week and parents' evenings. Children are provided with opportunities for self/peer-assessment, this affords them time to discuss their learning and spot strengths and areas for development in others. Feedback is developmental and children are provided with immediate encouragement through teacher-pupil conferencing and fast feedback. Teachers monitor the acquisition of skills, knowledge and understanding through appropriate teacher intervention, observations and discussions with groups and individuals. Teachers can update steps on target tracker at any time during the term, to show that a child has achieved a particular skill; this assessment informs the half-termly assessment judgement. Each pupil has a copy of their targets, these are referred to consistently during fast feedback as well as to inform teacher planning, gap analysis and next steps. These targets are updated termly in accordance with National Curriculum Objectives, medium term planning, pupil progress and gap analysis.

Monitoring and Review:

The Mathematics Lead works as part of a Standards Team who are responsible for monitoring the standard of pupils' work and the quality of teaching alongside this. This is carried out as part of any monitoring cycle and includes: lesson observation, book/planning scrutiny, and pupil conferencing. The Maths lead supports colleagues (teachers and support staff) in the pursuit for 'Quality first teaching', by delivering CPD and staff meetings, alongside year group and 1:1 support with planning design, accredited pedagogical knowledge and strategic approaches that raise standards. All teaching staff are responsible for tracking pupil progress half-termly; against age related expectations and reporting this at half-termly Pupil Progress Meetings. It is the responsibility of the Maths Lead to analyse the data following half-termly submission, in order to; track progress, ensure targets are being met, pupils are being stretched and children are fulfilling their potential. Subsequently, putting in place any interventions, for instance; booster groups for children who may not yet be meeting expectations. Furthermore, it is the role of the Maths Lead to ensure that

specific points of weakness from the school's data overview are identified and addressed with intent, implementation and qualitative and quantitative impact. As of September 2018, the subject leader has worked closely in collaboration with Achievement Leaders in order to gain a broader sense of academic need within a given year group as well as monitoring the progress and attainment of specific children within a contextual/prior attainment focus. It is the role and responsibility of the Achievement Leader in this instance to own accountability and ensure best practice in accordance with the aforementioned content of this policy.

