

BURMAN INFANT SCHOOL

MATHS POLICY

Spring 2020

This policy also should be read alongside the new National Curriculum in England (2014), other documents from the Standards and Testing Agency and with reference to relevant whole school policies mentioned. Our Curriculum overviews, medium and short term planning also support the content of this policy.

Our Whole School Vision for Maths

Our vision for Mathematics is based on a mastery approach in the belief that every child is a capable mathematician with the ability to calculate, reason and problem solve. Our aim is for children to experience the fun and enjoyment of learning Maths, built on foundations of purposeful exploration and discovery in early years. Children are given opportunities to experience a sense of awe and wonder as they solve a problem for the first time in an environment that is accessible for all. At Burman children have a safe space in which to develop confidence, independence and resilience, enabling them to build a positive attitude to learning Maths and an enjoyment of challenge.

Children are challenged to think mathematically and engage in rich mathematical discussion using appropriate vocabulary to explain their reasoning and ideas concisely. Throughout school, a concrete, pictorial, abstract approach is used to enable children to make links between previous learning and new experiences in order to develop fluency and build a deeper understanding. Children are always encouraged to 'have a go' and supported in understanding that mistakes form a key part of their learning.

Our children said that a mathematician is someone who...

- Is a good listener
- Looks for patterns
- Tries hard
- Never gives up
- Always concentrates
- Uses things to help them
- Explains their answers
- Asks questions
- Wants to find answers
- Is always ready to start
- Is resilient like Ruth
- Doesn't mind if they get the answer wrong, they just keep trying
- Asks questions when they are stuck
- Help others
- Tries their best

At Burman, we aim to create an environment rich in mathematical experiences and provide appropriate challenge so that all children gain the knowledge and skills needed to become fluent in mathematical processes, problem solving and reasoning. We also believe in teaching children about attitude to learning and providing them with the tools they need to develop a positive mathematical mindset of confidence, independence and resilience regardless of ability; so that every child is able to see themselves as a mathematician.

Mathematics Intent

At Burman Infant School, the aim is to ensure that children become fluent in the fundamentals of Mathematics, are able to reason mathematically and can solve problems by applying their Mathematical knowledge.

By the end of FKS children are confident exploring numbers to 20; including counting, estimating and addition and subtraction of single digit numbers. Children are able to make marks to represent their mathematics and use age appropriate mathematical language to discuss number, shape and measure.

By the end of KS1 children are secure in calculation strategies for the four operations and can apply this knowledge to numbers to 100. Children have also developed a deeper understanding of Maths through reasoning and problem solving and can discuss their work in number, shape and measure using a range of Mathematical vocabulary.

Aims:

All children will be encouraged to:

- Become fluent in the fundamentals of Mathematics through varied practice over time.
- Develop conceptual understanding in order to recall and apply their knowledge rapidly and accurately.
- Solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication.
- Approach problems methodically, breaking them down into a series of simpler steps and developing resilience when seeking solutions.
- Reason mathematically by following a line of enquiry, building generalisations and making connections
- Develop their own argument, justification or proof using mathematical language and drawing on personal experience and knowledge.

Mathematics Implementation

Children's knowledge of Number, Measure and Geometry are embedded over time through the use of a spiral curriculum. There is a focus first on ensuring children are secure in the mental and written calculation strategies appropriate to their age, before then providing children with opportunities to gain a deeper understanding of Maths through reasoning and problem solving. In FKS The learning environment also provides children with the opportunities to begin problem solving through both adult led questioning and independent investigation. In KS1 Mathematical topics are taught in blocks, to give children the opportunity to demonstrate and build upon prior knowledge and enable the achievement of 'mastery' over time.

A 'Concrete, Pictorial, Abstract' approach is applied throughout school which develops a deep and sustainable understanding of mathematical concepts. Teachers and children will move fluidly between each approach to reinforce concepts. Children are encouraged to illustrate Maths problems in a variety of ways, for example, drawing an array or jottings representing dienes. Varying the apparatus and methods they use to solve a problem helps children to make quicker mental connections between the concrete, pictorial and abstract phases.

Early Years Foundation Stage (EYFS)

FKS follow the Solihull Six Term plan to ensure all children are taught the required knowledge and skills by the end of Reception; with a key focus on Mathematical vocabulary. Children's Maths is assessed through teacher assessment against Development Matters and Early Learning Goals. Maths has an adult led focus once a week, with independent Maths activities available throughout the week to enable children to consolidate their learning.

Key Stage One

In KS1, we use a range of planning resources and guidance including those provided by Bright Pi, the White Rose Hubs and NCETM. Abacus is also used to provide a link between home and school with many online activities used at school with corresponding homework activities allocated to children for completion at home. Through our teaching we continuously monitor pupils' progress against expected attainment for their age, making formative assessment notes on planning that is used to inform future lessons. Where needed children are given extra support through immediate intervention or a more structure Maths intervention.

Throughout school, all adults reinforce an expectation that all children are capable of achieving high standards in Mathematics and that making mistakes plays a key role in our learning.

Impact and Assessment

By the end of each key stage we expect children to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Maths assessment is ongoing throughout school and is used to inform planning and teaching, as well as intervention, to support and enable the success of each child. Summative assessment is completed at the end of each term and data is analysed by the class teachers, the subject leader and Head teacher. Maths is monitored throughout all year groups using a variety of strategies such as folder/book scrutinies, learning walks and pupil and parent interviews.

Foundation Key Stage

In FKS children are assessed throughout the year using the Development Matters statements. By the end of FKS most children reach a good level of development through achieving 'Early Learning Goal Secure' across the curriculum. Targeted teaching is used throughout the year to support children that are not achieving the expected standard at that time.

Key Stage One

Children in Year 1 are assessed using the Year 1 Key Learning Objectives. Children in Year 2 are assessed using the KS1 Teacher Assessment Framework. Children's work is moderated using the objectives once every half term, both in school and at local authority moderation. Formative assessment using children's participation in lessons and recorded work in books ensures staff know that stage each child is working at. Age appropriate tests from Abacus and the White Rose Maths Hub are adapted by teachers and are used to support summative assessment at the end of each half term. Immediate intervention is used regularly to support children that have not achieved the intended outcome during the lesson. Small groups of children are identified for formal intervention programmes during the Autumn and Summer terms in Year 1 and during the Autumn and Spring terms in Year 2.

We hope that as our children move on to Year 3 and further their education and learning, that their curiosity for problem solving, passion for Maths and high aspirations travel with them and continue to grow and develop as they do.

Marking and Presentation

The work of the children during or following each activity / lesson is marked and written or verbal feedback is provided as appropriate and gives advice on next steps for learning. All work is marked following our whole school revised *Marking Policy / Procedure* and this can be referred to for further details.

Following pieces of recorded work, children are awarded 'P Ticks' to promote high quality presentation and to support children in taking pride in the work they produce.

Children are supported in their development of number formation from the first stage in Nursery and this is a key focus throughout school, particularly in KS1 when children begin recording their Maths in squared paper books.

When teachers mark Maths, they are encouraged to focus on the children's response to a given task and, once age appropriate, are expected to respond to marking through corrections, answering further questions or rehearsal of correct number formation.

Calculation

A 'Concrete, Pictorial, Abstract' approach is applied throughout school which develops a deep and sustainable understanding of mathematical concepts. Teachers and children will move fluidly between each approach to reinforce concepts. Children are encouraged to illustrate Maths problems in a variety of ways, for example, drawing an array or jottings representing dienes. Varying the apparatus and methods they use to solve a problem helps children to make quicker mental connections between the concrete, pictorial and abstract phases.

In KS1 children will begin to use more formal written methods for given calculations. (*Reference calculation policy.*)

Special Educational Needs

Teachers follow the Individual Education Plan for each child, incorporating the necessary resources, support and teaching methods. Where children have an EHCP it may be appropriate for this to be on a one to one or small group basis.

Wave One intervention takes place through individualised questioning, use of specific resources and differentiation.

Wave Two intervention takes place through targeted teaching and formal interventions. These are for a variety of children of different abilities.

Maths Across the Curriculum

Through our planning, we look for opportunities to export the knowledge, skill and understanding gained in Maths lessons into other subject areas. In FKS Maths is used across a variety of activities e.g. shape printing of poppies, collecting a given number of conkers from the sand pit. In KS1 Maths has a strong link with Science, for example, children regularly apply data knowledge to collecting and presenting environmental data in bar charts or pictograms. Children are also expected to discuss the months and seasons during weather topics as well as applying their knowledge of measure to find out how much rain has fallen in a given week.

Contribution to SMSC and British Values

We have a responsibility to offer a balanced and broadly curriculum which: promotes the spiritual, moral, cultural, mental and physical development of pupils at the school and of society, and prepares our children for the opportunities, responsibilities and experiences of later life.

Maths provides opportunities to promote:

- Spiritual Development through helping children to make sense of the world around them and explore the connections between their Maths skills and every-day life. Children are given opportunities to develop deep thinking and to question the way in which the world works.
- Moral Development through providing children with opportunities to use their Maths skills in real life contexts, applying and exploring the skills required to solve a variety of problems.
- Social Development by supporting the children in their collaboration with others, to problem solving, discuss, explain and present ideas. Children are encouraged to explain concepts to each other and support each other in their learning. As a result of this children are able to recognise their own strengths and feel a sense of achievement. Over time this enables children to become confident and resilient mathematicians.
- Cultural Development through helping children to explore and reflect on Mathematics as a universal language. Allowing discussion on the cultural and historical roots of mathematics.

Homework

We follow our Homework Policy Guidelines. (See Homework Policy)

We provide parents and carers with appropriate activities to support the learning objectives at School. This recognises the importance of making links between home and school and encouraging positive parental involvement in the learning of Mathematics.

Homework provides the opportunity for children to:

- Practise and consolidate their skills and knowledge in preparation for future Maths learning.
- Share their mathematical ideas with their family.
- Use mathematical vocabulary in the wider world. #

Monitoring and Evaluating the Quality of Teaching

Monitoring of the standard of children's work and the quality of teaching in Maths is the responsibility of the Headteacher / Subject Leader.

The named Governor for Maths is also involved in monitoring through Learning Walks alongside the Headteacher / Subject Leader.

Both the Headteacher and Subject Leader carry out planning and work scrutinies according to the SSE timetable / Subject Leader Monitoring Cycle.

Lessons are observed and the quality of teaching is monitored through Learning Walks and as part of our Performance Management Cycle.

Engagement of Stakeholders

- Parents / Carers who are 'volunteers' at Burman may support small groups of children within Maths lessons or spend time rehearsing number formation and basic number skills on a one to one basis.
- Parents are encouraged to support their children at home through playing Maths games in Reception and Year One and completing Maths homework in Year Two.
- Parents receive information regarding calculation methods in KS1.
- Governors – Communication of updates and review takes place through scheduled meetings.
- Collaboration with the named Governor for Maths, to include evaluation and SSE Monitoring procedures.
- Maths and Policy reviews / updates are shared with our 'Burman Community Group' (Parent Council) and feedback is welcomed.

Evaluation of this Policy

This policy will be reviewed by staff and Governors on an annual basis, or when there are significant local or national changes.

The following criteria will be used to measure its effectiveness;

- How has the quality of children's learning been enhanced and improved?
- How has the quality of teaching been improved?
- What have been the most successful teaching and learning strategies?
- Are staff and children following agreed routines (as outlined in the appendices)?
- Does assessment provide a holistic picture of the progress of our children?
- Is there clear evidence of assessment informing planning and teaching?
- Is our curriculum challenging enough?
- Has any part of the policy been difficult to implement?

Reviewed spring 2020

Next review spring 2021