Maths Policy

Mrs N Semple

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Approved by Chair_____

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Vision Statement

Through a positive caring environment, we provide the opportunity for every child to reach their full potential.

Our Big Ideas in Primary Mathematics are:

- The Number Line
- Place Value
- Equivalence
- Meanings and Symbols
- Estimation
- Classification
- Patterns
- Numerical Reasoning

Big Ideas help learners connect different aspects of mathematics.

Big Ideas are conceptually important in encouraging connections.

A Big Idea can be addressed across all the years of primary schooling.

Rationale

Mathematics equips pupils with the uniquely powerful set of tools to understand and change the world. These tools include logical reasoning, problem solving skills and the ability to think in abstract ways.

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 positive and enthusiastic attitude towards mathematics that will stay with them.

It is vital that a positive attitude towards mathematics is encouraged amongst all of our pupils in order to foster confidence and achievement in a skill that is essential in our society. At Busill Jones we use the White Rose Maths overviews as the basis of our mathematics programme. We are committed to ensuring that all pupils achieve mastery in the key concepts of mathematics, appropriate for their age group, in order that they make genuine progress and avoid gaps in their understanding that provide barriers to learning as they move through education. Assessment for Learning, an emphasis on investigation, problem solving and the development of mathematical thinking and a rigorous approach to the development of teacher subject knowledge are therefore essential components of the Busill Jones Primary School approach to this subject.

Aims and Intentions

We aim to provide the pupils with a mathematics curriculum and high quality teaching to produce individuals who are numerate, creative, independent, inquisitive, enquiring and confident. We also aim to provide a stimulating environment and adequate resources so that pupils can develop their mathematical skills to the full.

Our pupils should:
• have a well-developed sense of the size of a number and where it fits into the number system
• know by heart number facts such as number bonds, multiplication tables, doubles and halves
• calculate accurately and efficiently, both mentally and in writing and paper,
• drawing on a range of calculation strategies
• make sense of number problems, including non-routine/'real' problems and identify the operations

needed to solve them
• explain their methods and reasoning, using correct mathematical terms
• judge whether their answers are reasonable and have strategies for checking them where necessary
• suggest suitable units for measuring and make sensible estimates of measurements
• explain and make predictions from the numbers in graphs, diagrams, charts and tables
• develop spatial awareness and an understanding of the properties of 2d and 3dshapes

School Curriculum

Early Years Foundation Stage (EYFS)
We follow EYFS curriculum guidance for Mathematics. However, we are committed to ensuring the confident development of number sense and put emphasis on mastery of key early concepts. Pupils initially explore numbers to 20 and the development of models and images for numbers as a solid foundation for further progress.

The national curriculum identifies three main aims in the primary phase:

• become 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.

• 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.

The national curriculum states 'Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas.' Therefore, it is organised into distinct domains. However, pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. These domains for KS1 are:

• Number and place value

• Addition and subtraction

• Multiplication and division

• Fractions • Measures

• Geometry: properties of shape

• Geometry: position and direction

• Statistics (Year 2)

These domains for KS2 are:

• Number and place value

- Addition and subtraction
- Multiplication and division
- Fractions (including decimals and percentages)
- Ratio and proportion (Year 6)
- Measures
- Geometry: properties of shape
- Geometry: position and direction
- Statistics
- Algebra (Year 6)

The distinct domains highlight the important areas of mathematics children need to learn to make effective progress.

The LTP is taken from the White Rose maths hub overviews and their lesson overviews are used to inform MTP. The LTP is used as a guidance tool in order to pace out coverage of the curriculum throughout the year. Teachers are encouraged to use professional discretion when deciding on how long is needed on particular curriculum area whilst ensuring all objectives are covered by the end of the academic year.

Short term planning (STP) is recorded each week on standard planning sheets. These plans outline the topic area /focus with specific learning objectives to be taught that week. Specific representation, fluency, reasoning and problem solving columns identify the focus area, activity and support children will be carrying out/receiving.

Teaching Approaches

Teachers use a range of teaching strategies to engage the children in maths and ensure progress is made by all children within a class; no set formula is used. A typical lesson would include:

- Both teaching input and pupil activities,
- A balance between whole class, guided grouped and independent work, (groups, pairs and individual work)
- effectively differentiated activities/objectives and appropriate challenge.

Sometimes the focus for the session is new learning, at other times pupils may be practising, to master the application of a concept they have learned earlier. The focus of the session may vary for different children depending on their learning needs.

Teachers plan learning that is differentiated to meet the needs of all pupils, whether they have a specific learning difficulty in maths or whether they are particularly able.

Lesson Structures

A typical lesson should follow as such:

In KS1, children will recite and recall number bonds to 20 as well as recalling multiplication tables.

Year 2 to Year 6 will recite and recall multiplication facts and complete daily challenges. At the end of the week, teachers and TAs will record children's scores and use these towards assessment information. (10-15mins)

Arithmetic (20 minutes) Teachers should use this time to teach specific arithmetic skills that the children are needing. Using Puma tests and arithmetic SATS papers should give you an indication on what the children need.

Task 1 Fluency: Teachers should spend no longer than 5 minutes modelling an example of the work that is in books. The questions for the children's fluency can then be on the IWB or on tables, unless they need a picture in order to answer e.g a clock to show time. The children should then be allowed 5 – 10 minutes depending on the attainment of the class to complete their fluency. There is no need to keep children on Fluency if they have shown their understanding quickly. Extensions should also be available if needed for higher attainers.

Task 2 Reasoning: If the children are confident with fluency they can move on to the next task. This will be on a sheet. Presentation is important and so lines or a space in books should be provided for children to write on. Teachers should again model an example question, spending no longer than 5 minutes. The correct language should be used and Maths vocabulary should be included. The maths sentence stems should be modelled and the correct grammar and punctuation used also. Children should then be given 5-10 to complete and there should be an extension ready. If children are not secure with fluency, they should receive teachers support within the lesson before moving on to their reasoning.

Task 3 Problem solving: Once the children complete their reasoning they should be given the opportunity to complete their problem solving. This will also be stuck in. Teachers should again model an example of how to answer a question before the children attempt it, no longer than 5 minutes. The children are then given 5-10 minutes to complete the task with a problem solving challenge at the end, this can be completely independent. Whilst on task 3 teachers can use this opportunity to support those who needed help with reasoning and then problem solving.

Plenary: The plenary can then be the independent challenge taken from their books. Children should then be allowed time to do their self and peer assessments.

Provision and Differentiation

Pupils are provided with a variety of opportunities to develop and extend their Mathematical skills, including:

- Group work
- Paired work
- Whole class teaching
- Individual work

Pupils engage in:

• the development of mental strategies

• written methods

• practical work

• investigational work

• problem solving

• mathematical discussion

• consolidation of basic skills and number facts

• maths games

We recognise the importance of establishing a secure foundation in mental calculation and recall of number facts before standard written methods are introduced. We use accurate mathematical vocabulary in our teaching and children are expected to use it in their verbal and written explanations.

We set work that is challenging, motivating and encourages the pupils to think about how they learn and to talk about what they have been learning. Additional enrichment opportunities are provided for pupils to further develop mathematical thinking e.g. through cooking, music, and maths investigations and games.

Teachers plan problem solving and investigational activities daily to ensure that pupils develop the skills of mathematical thinking and enquiry.

Maths Assessment

Formative Assessment

Teachers integrate the use of formative assessment strategies such as effective questioning, the use of success criteria and effective feedback and response in their teaching.

Summative Assessment

Using termly PUMA and White Rose tests, pupils are assessed against NC levels every term. The school's progress tracking system Scholarpack is updated termly.
National Curriculum tests are used at the end of KS1 and 2, with Year 2 testing every half term and Year 6 testing every four weeks; teachers use past and sample papers to inform their assessments as they prepare pupils for these assessments.

All assessments and teaching informs teachers understanding of a child's ability in maths and this is recorded in Scholarpack. Teachers should use the data from these tests to adapt their planning to meet the needs of their class. Year 2 and Year 6 also have an excel spread sheet to record their SATs data.

Role of the Head Teacher

In consultation with the Maths Subject leader, the Head teacher:

- Determines the ways Maths should support, enrich and extend the curriculum;
- Decides the provision and allocation of resources;
- Decides ways in which developments can be assessed, and records maintained;
- Ensures that Maths is used in a way to achieve the aims and objectives of the school;

- Ensures that there is a Maths policy, and identifies a Maths subject leader.

Role of the Subject Leader

- Ensures teachers understand the requirements of the National Curriculum and supports with planning where necessary.
- Manage the provision and deployment of resources and give guidance on classroom organisation support.
- Leads by example by setting high standards in their own teaching and supporting staff through coaching and team teaching sessions.
- Prepares, organises and leads CPD and joint professional development in line with the school's CPD calendar.
- Works with the Inclusion Lead to determine targets for graduated responses, make referrals to Advisory SEND Teacher.
- Observes colleagues in line with Monitoring and Evaluation Policy and identifies the support they need.
- Attends CPD internally and externally.
- Deploys support staff to address mathematics related needs within the school and organises interventions of support for identified children.
- Monitors and evaluates mathematics provision in the school by conducting regular work scrutiny, learning walks and assessment data analysis.

Monitoring and Evaluation

The teaching of Maths will be monitored through the School Improvement Plan by the Maths subject leader in the first instance and then by the Senior Leadership Team and the Head teacher. SATS results are analysed and areas for development prioritised. Governors are kept informed via the head teacher's termly.

Recording of work

All pupils in KS1 and KS2 will have one Maths book which will include all work. Mental arithmetic activities are recorded in their Maths books. Within the Early Years, this may be recorded on an observation form using 2 Simple and included in the Maths book.
Multiplication tables may be recorded on grids and kept in folders of evidence and in addition to this TimesTable Rockstars.

Planning

All sessions should be planned using the schools planning proforma.
Objectives for the lessons being taught should be taken straight from the Maths Long and Medium term planning (White Rose Hub), which follow the National Curriculum for Maths and plans for introduction, implementation and embedding of skills.
All lessons should be fully differentiated and accessible to all pupils.

Marking

Teachers mark pupil's writing throughout the lesson to ensure that errors and misconceptions are addressed as soon as possible, rather than a pupil complete a whole piece of writing incorrectly. Number formation, are also corrected as issues arise, with pupil's given the opportunity to practice during the lesson.
Please refer to our Marking and Feedback Policy for further guidance on marking.

Inclusion

In planning work the teachers will aim:

- to provide concrete and pictorial resources to scaffold learning needs
- to provide a differentiated Maths curriculum to meet the needs of all the pupils through the continuity of experiences
- to set suitable learning challenges for individuals or small groups of pupils
- to respond to pupils diverse learning needs
- to liaise with the SENCO to ensure that provision is made for all pupils
- to ensure interventions are applicable with clear objectives set

Targets should be identified on short term planning to overcome potential barriers to learning and assessment for individuals and groups of pupils. In addition, children are invited to take part in pre-teach session, designed to support the children will concepts being covered that day. Targeted booster groups, used to support both the more able children and those with specific needs.

SEND Provision

Pupils identified as needing extra support in Maths will be given the appropriate help in the classroom. Providing for pupils with special educational needs should take account of each pupil's particular learning and assessment requirements and incorporate specific approaches which will allow individuals to succeed.

All appendices are subject to change based on annual review by Subject Leaders.

This policy will be reviewed annually unless there are any changes within the Trust.

An example of a Maths Learning wall