

Burton Road Primary School

Mathematics Policy – 2022/2023

Intent:

We aim to develop lively, enquiring minds encouraging pupils to become self motivated, confident and capable in order to solve problems that will become an integral part of their future.

The National Curriculum for mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly 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.**

Mathematics curriculum planning - Implementation

Mathematics is a core subject in the National Curriculum, and we use the Small Steps planning from the White Rose Maths Hub as the basis for implementing the statutory requirements of the programme of study for mathematics. Alongside this arithmetic is planned separately and taught/practised regularly throughout the week across all classes. Children also participate in regular arithmetic tests to practise solving calculations in timed conditions in order to prepare them for the end of Key Stage 2 assessments.

When teaching mathematics we follow these principles to ensure children have the best chance of succeeding with mathematics.

- **Declarative knowledge** – ensure children know the key facts confidently relevant to their age/class/ ability to enable them to succeed with the next steps in maths.
- **Reconnect and review** declarative knowledge (key facts) regularly and ensure pupils can recall these quickly.
- **Procedural knowledge** - ensure pupils are taught clear methods and procedures as set out in the calculation policy. These methods are **revisited and practised regularly.**
- **Conditional Knowledge** – children are taught strategies for tackling problem solving and reasoning style questions within each mathematical topic. They apply both declarative and procedural knowledge to help them solve such problems.

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In addition to this times tables are also taught discreetly within maths lessons each day in order to complement the maths curriculum and their knowledge but also to prepare pupils for the statutory mathematics multiplication checker at the end of Year 4. A variety of activities and games are used to assist with the teaching of times tables and an individual test is completed each week to check pupils' knowledge. Children receive rewards when they have completed a times table in order and then further reward when they can recall it out of order.

As a school we subscribe to Times Table Rockstars which we encourage children to use at home as part of their home learning when practising times tables. We have clear expectations of what each year group should be taught with regards to times tables.

Burton Road Year Group Expectations – Times Tables

<u>YEAR</u>	<u>First half term</u>	<u>Second half term</u>	<u>Third half term</u>	<u>Fourth half term</u>	<u>Fifth half term</u>	<u>Sixth half term</u>
<u>Year 1</u>	<u>Experience of counting in 1s, 2s, 5, 10s</u>					
<u>Year 2</u>	<u>1x</u>	<u>(1x) 2x</u>	<u>5x</u>	<u>(5x)10x</u>	<u>0x and revision</u>	<u>revision</u>
<u>Year 3</u>	<u>(2x) 4 x</u>	<u>(4x) 8 x</u>	<u>3x</u>	<u>(3x) 6x</u>	<u>(6x) 12x</u>	<u>revision</u>

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<u>Year 4</u>	<u>9x</u>	<u>7x</u>	<u>11x</u>	<u>Squares</u>	<u>revision</u>	<u>Test: June</u>
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Organisation - Implementation

The school uses a variety of teaching and learning styles in mathematics lessons. Our principal aim is to develop children's knowledge, skills and understanding in mathematics. We do this through a daily lesson that has a high proportion of whole-class and group-direct teaching. Each lesson starts with a '5 in 5' starter task which aims to consolidate, practise and revise number concepts and the four operations.

During maths lessons we encourage children to ask, as well as answer, mathematical questions. They have the opportunity to use a wide range of resources such as number lines, number squares, digit cards and small apparatus to support their work. Interactive whiteboards are used in every classroom to enhance the learning of mathematics. Wherever possible, we encourage the children to use and apply their learning in everyday situations.

Within Upper Key Stage 2 the children are placed in ability groups and taught accordingly to meet their needs. Within other classes across the school there are children of differing mathematical ability. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this through offering differentiated tasks to enable children to learn at their level and make progress but also to promote independence. We ensure that the higher ability learners are challenged accordingly within their year group standards through tackling more open ended reasoning style questions linked to the standard being taught. Classroom assistants are used to support learning where necessary. Following on from learning/lessons the work is checked by a teacher and any problems are followed up immediately that day in a same day intervention.

School Curriculum - Programme of Study - Implementation

Foundation Stage

The programme of study for the Foundation stage is set out in the EYFS Framework 2021. Mathematics involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shape, spaces and measures.

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Key Stage 1 and 2

The Programmes of study for mathematics are set out year by year for Key Stages 1 and 2 in the new National Curriculum (2014). The programmes of study are organised in a distinct sequence and structured into separate domains. Pupils should make connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Key Stage 1

The principal focus of mathematics teaching in Key Stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources (e.g. concrete objects and measuring tools). At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money. By the end of Year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1.

Lower Key Stage 2

The principal focus of mathematics teaching in lower Key Stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of Year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Upper Key Stage 2

The principal focus of mathematics teaching in upper Key Stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

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At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

By the end of Year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. Pupils should read, spell and pronounce mathematical vocabulary correctly.

Assessment and recording - Impact

Teachers plan and deliver lessons, using different pedagogical forms, which suit the particular learning styles and ability of the children within the year group, working to their year group standard, providing appropriate differentiation so that all children can access the learning. They will use their own judgement and regular formative assessment to ensure a flexible approach is adopted which recognises the pace of learning within the classroom, as well as resources used. Across a range of lessons children should be allowed to engage in mathematical discussion (talk partner or group work), investigations, problem solving, practical experiences and written methods. Children record work in maths book which is checked by teachers and planning and teaching modified accordingly. Same day interventions are then carried out for children who still need that extra support

1. Children in the Foundation Stage are assessed in accordance with the EYFS curriculum.
2. Within Key Stage 1&2 children complete summative assessment tests and the data/results from these are inputted into the school's electronic data system – SIMS. This is then shared with parents. From the results progress matrices are completed which help to identify pupils who are off track and teaching /support can be planned accordingly. Teachers carry out GAP analysis of the tests to update and modify planning and teach children accordingly.
4. Marking – See section below
5. SAT's – These take place in Years 2 and 6 and should be analysed to inform planning.

Marking and presentation

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Teachers are expected to adhere to the schools marking policy when marking books and presentation policy when guiding children as to how to present their work. Highlighters are used to mark the objective (Red, amber and green).

Inclusion

In line with the School's Inclusion Policy each child will have an equal entitlement to all aspects of the Maths curriculum and to experience the full range of Maths activities. Therefore, in delivering Maths, care will be taken to ensure that a variety of learning styles are accessed and teaching methods adopted. Intervention groups will take place both within the Maths lesson and outside; these sessions may be delivered by the teacher or teaching assistant and may involve individual or small group work, accessing both ends of the learning spectrum.

We set ambitious but achievable targets within maths and are determined that all children including our lowest attaining pupils and those with SEND enjoy success with maths during their time at Burton Road Primary School. Activities are differentiated accordingly so each child can achieve within their year group. Resources are provided and used appropriately to compliment learning.

Resources

There are a range of resources to support the teaching of mathematics across the school. All classrooms have counting sticks and a wide range of appropriate small apparatus appropriate to their year group needs.

Monitoring and Evaluation - Impact

The Curriculum leaders, alongside SLT, are responsible for monitoring and evaluating curriculum progress. This is done through book scrutiny, planning scrutiny, lesson observations, pupil interviews, staff discussions, staff surveys and audit of resources.

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Review

The mathematics policy will be reflected in our practise. The policy will be reviewed September 2023.