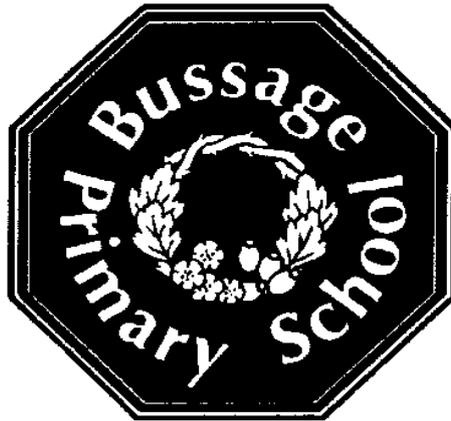


# Maths Policy



**Date: May 2021**

Signed: Samuel Mills

**Next Review: May 2023**

Bussage Primary School is a Church of England Voluntary Aided Primary School and this policy is written within the context of the Christian faith, practice and values which underpin our ethos, and which are in keeping with our Trust Deed.

## **Introduction**

At Bussage Primary school we value every pupil and the contribution they have to make. As a result we aim to ensure that every child achieves success and that all are enabled to develop their skills throughout their time with us.

**Mathematics is both a key skill within school, and a *life skill* to be utilised throughout every person's day to day experiences.**

## **Rationale**

Mathematics equips pupils with a 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.

The National Curriculum for mathematics (2014) describes in detail what pupils must learn in each year group. Combined with our Calculation Policy, this ensures continuity, progression and high expectations for attainment in mathematics.

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 Bussage C of E Primary School, we use the National Curriculum for Mathematics (2014) 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. Effective feedback, an emphasis on investigation, problem solving, the development of mathematical thinking and development of teacher subject knowledge are therefore essential components of the Bussage C of E Primary School approach to this subject.

## **1 Intent – aims and objectives**

1.1 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 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. (Mathematics programmes of study: key stages 1 and 2 National curriculum in England 2014).*

1.2 Through effective teaching and learning Bussage School aims:

- To foster a positive attitude to mathematics as an interesting and attractive part of the curriculum.
- To develop the ability to think clearly and logically, with confidence, flexibility and independence of thought.
- To develop a deeper understanding of mathematics through a process of enquiry and investigation.
- To develop an understanding of the connectivity of patterns and relationships within mathematics.
- To develop the ability to apply knowledge, skills and ideas in real life contexts outside the classroom, and become aware of the uses of mathematics in the wider world.
- To develop the ability to use mathematics as a means of communicating ideas.
- To develop an ability and inclination to work both alone and cooperatively to solve mathematical problems.
- To develop personal qualities such as perseverance, independent thinking, cooperation and self-confidence through a sense of achievement and success.
- To develop an appreciation of the creative aspects of mathematics and an awareness of its aesthetic appeal.

## **2 Implementation - Principles of teaching and learning**

2.1 Teachers at Bussage strive to:

- Build children's confidence and self-esteem.
- Develop children's independence.
- Allow all children to experience regular success.
- Contextualise mathematics.
- Use practical approaches to mathematics (models and images).
- Encourage children to select independently resources to help them.
- Challenge children of all abilities.
- Encourage children to enjoy mathematics.
- Develop a child's understanding of mathematical language.
- Learn from teachers, peers and their own mistakes.
- Allow children to ask questions as well as answer them.

## 2.2 Our pupils should:

- Have a well-developed sense of the size of a number and where it fits into the number system (place value).
- Now by heart number facts such as number bonds, multiplication tables, doubles and halves.
- Use what they know by heart to figure out numbers mentally.
- Calculate accurately and efficiently, both mentally and in on paper,
- Drawing on a range of calculation strategies.
- Recognise when it is appropriate to use a calculator and be able to do so effectively.
- 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 3D shapes.

## 3. Maths Curriculum planning

- 3.1 Mathematics is a core subject within the National Curriculum. At Bussage C of E Primary School we use the objectives from this to support planning and to assess children's progress. Planning begins from a thorough understanding of children's needs, gleaned through effective and rigorous assessment and tracking, combined with high expectations and ambition for all children to achieve. Each teacher knows and understands the objectives for their year group, and can use the objectives progression document to see how these objectives build on previous learning. The long term plan for each year group will highlight the objectives covered in each term, ensuring that the National Curriculum for each year group is covered across the year
- 3.2 The expectation is that teachers will deliver well planned lessons. Class teachers can produce short term (weekly) plans for their own use. These will list the objectives which will be covered in each session. These plans may list AfL questions / teaching points for each lesson, and give details of how the lessons are to be taught. It also may include how adults are to be utilised during the lessons. Teachers will use the outcomes of individual lessons to judge the classes readiness to move on.
- 3.3 Class teachers plan for opportunities for children to apply their maths skills across the curriculum, linked with the current theme of the class. These opportunities not only provide children with opportunities to revisit, practice and consolidate different areas of maths; more importantly, it allows children to apply them within different contexts within the 'real world'.

## **4 Early Years Foundation Stage**

- 4.1 We follow the EYFS curriculum for Mathematics. We are committed to ensuring the confident development of number sense and put emphasis on mastery of key early concepts. We relate the mathematical aspects of our children's work to the Mathematics (M) of the EYFS. We give all children opportunity to develop their understanding of number, calculation, measurement, pattern, and shape and space through activities that allow them to enjoy, explore, practise and talk confidently about maths.
- 4.2 Children's mathematical development is carefully planned for, through adult led focus activities, and through mathematical learning in all areas of provision. Planning is in place to support the children's mathematical development both inside and outside the classroom.
- 4.3 Throughout EYFS children are encouraged to use and develop mathematics through play in all areas. Concepts of shape, space, direction, size, length, capacity, and mass are developed through sand, water, tactile play and outdoor provision.

### **Impact**

## **5 Contribution of maths to teaching in other curriculum areas.**

### 5.1 English

English skills are practised throughout the teaching of the maths curriculum through actively promoting the skills of reading, writing, speaking and listening. Teachers encourage children to read and interpret problems in order to identify the maths involved. The children present and explain their work to others throughout maths sessions, enabling them to show a deeper understanding of the concepts involved through answering questions such as: "How can you convince me?" "Can you give me an example?" and "Can you explain your thinking?" Younger children enjoy stories and rhyme that rely on counting and sequencing.

### 5.2 Science

During science lessons, children are able to use and apply their data handling skills when creating tables and graphs of scientific measurements. Whole class discussion of data also highlights the importance of clear recording of information. Children are also able to use a range of measuring devices in a real-life context.

### 5.3 Personal, Social and Health Education (PHSE) and citizenship and Spiritual, Moral, Social and Cultural development.

The teaching of mathematics supports the social development of our children through the way we expect them to work with each other in lessons. In conjunction with the Bussage Learning Powers, teachers will ask children to show their ability to be good self-managers (Sammy Squirrel); show good independent enquiry skills (Carlos Cat); Participate effectively within the session (Polly Penguin); be a good team worker (Bella Bee); show an ability to be a resourceful thinker (Sonia Spider); and also be a reflective learner who can use feedback to improve in the future (Oscar Owl).

## **6 Maths and Computing**

Children use and apply mathematics in a variety of ways when solving problems through computing. They have access to the school devices – laptops and Chromebooks. Throughout the school, children use various computer programs to help them to consolidate their understanding of maths learned in the classroom. When using control programs, children use standard and non-standard measures for distance and angles. Older children also use suitable programs to produce graphs and tables when explaining their results. Learning the times tables is a focus area for the school and we have subscribed to Times Tables Rock Stars (TTRS) in order to capture the children's imagination and help them to become more efficient in their times table recall. Each child at Bussage C of E Primary School has their own personal login to TTRS where they have their own personal avatar. This avatar is anonymous and the children's real name is never displayed online. Teachers can then select the tables each child needs to work on and their progress can be monitored online.

## **7 Maths and inclusion**

- 7.1 Where children are working significantly above or below the objective the majority of the class need to work towards, then planning will take special consideration of their needs. In line with the National Curriculum we will, in the first instance, use the objectives from the child's own year group and differentiate the difficulty of the task they need to complete.
- 7.2 In order to extend the child's understanding from the basic, to a deeper understanding of the objective, we follow a mastery approach to maths. All children will have the same opportunity and exposure to an objective and learn the basic skill in the first instance. They can then move on to tasks which use the same objective and require the child to explain their thinking and reasoning in a fairly complex way through use of appropriate problems and puzzles. We will, in the majority of cases, look to deepen a child's understanding of their year group objectives through more challenging tasks, rather than move them onto the following year's objectives.
- 7.3 Where a child needs help securing the basic understanding of a concept, help, support and differentiated tasks will be set to encourage independent enquiry within maths whilst allowing them to access the curriculum, and part of this will be ensuring that they have the necessary prior knowledge of previous year's objectives to access the age related objectives.
- 7.4 Intervention through School Action and School Action Plus will lead to the creation of a 'My Plan' for children with special educational needs. The 'My Plan' may include, as appropriate, specific targets relating to Maths. This may include time carried out by teaching assistants enables the children to work on improving their skills in their particular areas of weakness.
- 7.5 Additional adults are utilised in a number of ways to help children to maintain their progression throughout the school. Teaching Assistants work with groups of children within the class where required. They can work with children of all abilities to ensure each child makes good progress within a session.
- 7.6 Teaching Assistants are also used to help with maths intervention groups. Where a need has been observed through Pupil Progress Meetings and in class observations, an appropriate target will be planned for an individual child or small group of children which can then be worked on within an allocated time slot during the week.

## 8 Assessments

- 8.1 Assessment is an integral and continuous part of the teaching and learning process at Bussage School and much of it is done through AfL as part of each teacher's day to day work in their teaching and marking. Teachers integrate the use of formative assessment strategies such as effective questioning, clear learning objectives, the use of success criteria, effective feedback and response, and observing children participating in activities. Each piece of worked is marked. This may be by the teacher or other supporting adult. It may be peer or self-marked in class under the guidance of the teacher. Answers that are correct will be marked in red (red for excellence). Incorrect answers will be marked with a green dot (green for growth). Where peer or self-marking has taken place, the children will mark their work in blue. Teacher comments, questions and suggestions will also be marked in green. In Key stage 2, children are expected to respond to teacher marking in blue pen (better with blue).
- 8.2 From Year 1 to Year 6, children work towards completing a set of 'non-negotiables' in Maths throughout each year. The children are aware of their non-negotiables and understand what is required to achieve them. These are the skills which have been identified with our cluster of schools as being critical for the development of mathematical understanding. They have been identified to build the skill set of a child towards achieving the 'interim teacher assessment frameworks' set out by the government. Assessment for these skills takes place throughout the year, as classroom observations by the class teacher, and more formal tests each term, with the data inputted into tracking grids. This data enables class teachers, the head teacher and subject leaders to monitor progress over the year and for the class teacher to assess against end of year expectations in the summer report to parents. In the end of the year report, it is reported if a child is working at the age-related expectations. The end of year attainment and progress data can then be passed on to the teacher of the next year group.
- 8.3 Pupils' attainment is recorded at three assessment points during the academic year. They are judged as working within one of five bands:
- Below, At-, At, At+ or Above year groups expectations. These are determined by teachers making judgements against the non-negotiables, taking the summative assessments into account.
- 8.4 Progress is measured throughout the year and at each of the three assessment points. Expected progress is when a pupil maintains the level they were at, at the end of the previous key stage (ie, if achieved 'at' the expected level at the end of Year Two, they should be attaining at least 'at' the expected level throughout Key Stage Two). If a pupil moves up or down an assessment band they would be judged as making 'better than expected' or 'less than expected' progress respectively.
- 8.5 All attainment and progress data is recorded on internal tracking systems, as well as on Pupil Progress forms, where individual/group interventions are also highlighted for those pupils lacking in progress and/or attainment, or where interventions are needed to push, for example, higher achievers on. End of year attainment targets are also highlighted on these forms, based on pupils achieving at least expected progress as well as endeavouring to be at least in line with national standards. The Pupil Progress forms are shared and discussed with the subject leader.

## **9 Resources**

- 9.1 The shared resources within the school have been catalogued and are stored in the shared resource area. Each teacher has a class list of the resources and is aware of which resources are best suited to their individual class needs. Children have access to the internet through school laptops, Chrome books and classroom interactive whiteboards.

## **10 Monitoring and Review**

- 10.1 It is the responsibility of the Mathematics subject leader (under the guidance of the Head Teacher) to monitor and review the maths provision within the school.
- 10.2 The coordination and planning of the Maths curriculum are the responsibility of the subject leader, who also:
- supports colleagues in their teaching, by keeping informed about current developments in Maths and by providing a strategic lead and direction for this subject;
  - gives the head-teacher an termly summary report in which s/he evaluates the strengths and weaknesses in Maths and indicates areas for further improvement;
  - uses specially allocated regular management time to review evidence of the children's work, observe Maths lessons across the school, undertake learning walks, pupil conferencing and book scrutiny. In addition, s/he monitors teachers' medium term plans and their use of AfL.
- 10.3 A named member of the school's governing body is briefed to oversee the teaching of Maths. The English governor meets regularly with the subject leader to review progress.
- 10.3 This policy will be reviewed at least every two years.

## **11 Maths on the school website**

- 11.1 Documents on the website:
- Maths Policy.
  - Calculation progression policy.

## **12 Other documents to be read in conjunction with this policy**

- Marking Policy
- Teaching and Learning Policy
- SEND Policy
- Curriculum Policy

**Signed:**

**Date:**