



Title: Mathematics Policy

1. Introduction

- 1.1. Buckingham Park Church of England Combined School is a Voluntary Aided School serving the whole community. We aim to provide the highest quality all round education, for each and every child, in partnership with parents, within the context of a Christian community. In short, 'Excellence, through God who strengthens us'.
- 1.2. Our curriculum policies are set to ensure that we meet the learning aims as set out in our foundation document:
 - Each child makes sustained progress as a result of outstanding, motivating and inspirational teaching.
 - The teaching of reading, writing, communication and mathematics is exceptional and each child makes excellent progress.
 - Teachers plan challenging and enjoyable tasks based on accurate assessment of pupils' prior skills, knowledge and understanding – supported by an outstanding, creative curriculum.
 - Learning across the entire curriculum is highly valued and each subject and area of learning is treated as significant.
- 1.3. In November 2017, Buckingham Park Church of England Primary School began transitioning towards a mastery approach to the teaching and learning of mathematics. We understood that this would be a gradual process and take several years to embed. The rationale behind changing our approach to teaching mathematics lay within the research, the Mathematics Specialist Teacher Programme, the NCETM/Maths Hub led Mastery Specialist Programme as well as the 2014 National Curriculum, which states:
 - The expectation is that most pupils will move through the programmes of study at broadly the same pace.
 - Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content.
 - Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

2. Mathematics

2.1. Our teaching for mastery in mathematics is underpinned by the NCETM's 5 Big Ideas. Opportunities for Mathematical Thinking allow children to make chains of reasoning connected with the other areas of their mathematics. A focus on Representation and Structure ensures concepts are explored using concrete, pictorial and abstract representations, the children actively look for patterns as well as specialise and generalise whilst problem solving. Coherence is achieved through the planning of small connected steps to link every question and lesson within a topic. Teachers use both procedural and conceptual Variation within their lessons and there remains an emphasis on Fluency with a relentless focus on number and times table facts.

3. Vision for Mathematics Learning and Teaching

3.1. As part of our development of mathematics at Buckingham Park, we have developed a 'Vision for Mathematics' which is at the heart of our learning and teaching. This 'vision' is attached as appendix 1.

4. Organisation and Planning

4.1. Mathematics is taught within mixed ability class groups.

4.2. We teach mathematics through units of work, in line with the National Curriculum. These long term plans, which form the basis of our schemes of learning ensure that there is an emphasis on number and that there is sufficient time for children to 'master' mathematical concepts before moving on.

4.3. To support the planning for mastery, the school has adopted the schemes of learning developed by the White Rose Maths Hub.

5. Assessment

5.1. Formative Assessment:

We use a range of materials to support rigorous and regular formative assessment of basic skills in numeracy. At the heart of our approach is regular verbal feedback to pupils, and assessment against the National Curriculum, recorded regularly using Target Tracker. Formative Assessment takes many forms within the classroom and is characterised by 'assessment *for* learning'.

Teachers makes use of, for example, White Rose Maths Hub planning and NCETM Mastery Assessment Materials, help triangulate our teacher judgments alongside work in books and classroom observations.

The purposes of our formative assessment are to:

- check that children have grasped the main teaching points in a particular lesson or unit of work, whether they have any misunderstandings that the teacher needs address (through additional support, additional practice or through alternative resources), and whether they are ready to move on;
- check that children are remembering number facts and can use mental calculation strategies;
- give the teacher information which will help him/her to adjust day-to-day lesson plans and brief any support staff or adult helpers about which children to assist, and how to assist them.

The pupils self-assess their work at the end of every lesson using a simple system which is common to all subjects.

5.2. Summative Assessment

Using Rising Stars half termly progress tests, pupils are assessed against their year group objectives every half term. These assessments inform the teacher assessment which are then recorded as 'steps' on Target Tracker'.

The school's Assessment and Marking Policies inform high quality feedback and pupils' response to it in Mathematics.

6. EYFS

6.1. 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 explore the 'story' of numbers to twenty and the development of models and images for numbers as a solid foundation for further progress. Teachers use the concrete – pictorial – abstract approach to conceptual development.

7. Marking

7.1. Regular book checks will be made in line with the school feedback policy.

8. Special Educational Needs and Disability

8.1. In line with the school policy on Special Educational Needs, the SEND coordinator, mathematics leader and the class teacher will be involved in ensuring that pupils will have work planned to meet their needs. Classroom assistants will also provide additional support. Those pupils with significant needs in mathematics should have specific mathematical targets set, recorded on their provision maps.

9. Monitoring this policy

9.1. The class teachers, the mathematics coordinator and the head teacher will monitor the approaches detailed in this policy, in line with school policy. The focus for monitoring each year will be decided at the start of the year. We will monitor using a variety of strategies including class room observations, work scrutiny, planning reviews, pupil progress meetings, tracking individual children and assessment analysis.

10. Linked Policies and Documents

10.1. The following policies and documents link to this policy:

Assessment policy	The National Curriculum for England
Feedback policy	Calculation Policy
Presentation policy	SEND Policy

Appendix 1

A Vision for Mathematics

- We aim for mastery learning at the expected level for all children in mathematics. This will be learning for all that is sustained over time. For higher attaining children we aim to provide a broader, richer and deeper experience of the work that others are doing.
- All children, but particularly those children who are making slow progress and/or falling below the expected level have regular opportunities to explain their reasoning verbally, in sentences, using correct vocabulary. Children are taught systematically to talk about mathematics. Teachers use a range of strategies to ensure this including: lolly sticks, planned questions and rigorous talk partner activities. Children are encouraged to respond in complete sentences.
- Children change who they sit with in mathematics lessons on a regular basis to ensure that they have opportunities to discuss mathematics with a wide range of other children.
- Guided group work is used as a way to develop in-depth dialogue with groups of pupils with a similar learning need. Children making slow progress or those falling below the expected level are involved more frequently in these guided group work activities.
- The classroom culture is about developing understanding, uncovering errors and misconceptions, and discussing methods, strategies and techniques. Children are encouraged to view uncovering errors and misconceptions as key opportunities to learn.
- Teachers know which pupils are making slow progress and/or are falling below expectations. They have well defined strategies through which they are seeking to accelerate their learning.
- More able pupils who have already mastered or quickly master the expected level within a unit of work are provided with opportunities to broaden, enrich and deepen their knowledge. Time is not wasted revisiting 'easy' work.
- Planning and teaching is informed by the principle 'Concrete to pictorial to abstract'. Teachers use a range of concrete and visual resources when developing concepts.
- The learning environment supports and stimulates current learning in mathematics including a working wall. In particular children can find things that will help them with current work when they are stuck. Children are trained to use the learning environment.
- Children read and respond to marking and find this process helpful as they engage with the next steps in their learning.
- Teaching assistants have effective learning conversations in all phases of lessons with individuals, pairs and groups. Teaching assistants work with children from across the attainment spectrum. To support their work teaching assistants each have a 'mathematics kit bag' of concrete and visual resources.
- Teachers support children in developing links across and within the mathematics curriculum to assist children with recall and developing deeper understanding.
- All children have regular opportunities to engage with open and rich mathematical activities including investigations.
- Teachers work with children to "get rid of counting" as a calculation strategy, in order to develop fluency.
- It is the children's 'job' to learn mathematics. Teaching promotes independence and responsibility e.g. by using the 'Five Bs' (Brain, Book, Boards, Buddy and Boss) and ideas about Growth Mindsets.
- Teachers increasingly use new teaching methods being imported from other successful education systems e.g. the bar method, part-part-whole diagrams, ten frames. Teachers use the NCETM website as a major way to access these and other new ideas.

Appendix 2

Maths Working Walls

Maths working walls should show the process and different stages of learning. They need to be interactive and should be used to record, visualise and assist learning. Maths Working Walls should allow children to see written methods for calculations, while absorbing the mathematical language used in a particular area of the subject. They need to include differentiated challenges for children so that learning is extended for children of all abilities.

Features included on the Maths Working Wall in Early Years:

1. Learning Outcomes.
2. Links to Number and Shape, Space and Measures.
3. Fluency, Reasoning and Problem Solving.
4. Interactive Number line.
5. Mathematical vocabulary.
6. Photos of children in action
7. Age appropriate real life examples

Features included on the Maths Working Wall in Years 1 to 6:

1. Learning Outcomes.
2. Fluency, Reasoning and Problem Solving.
3. The Times Tables in which the children are currently working on.
4. Modelling of the current Maths learning (including Mental Arithmetic).
5. Success criteria for current learning and good examples of children's work
6. A Maths problem related to the current topic.
7. Vocabulary related to current maths learning and possible definitions if appropriate.
8. Child selected activities that they can borrow from the working wall to support or extend learning;
9. Next steps for learning evident e.g. a learning ladder of objectives to
10. An opportunity for children to interact with the display e.g. through responding to a 'Problem of the week' by attaching sticky notes to the display, or exploring relevant practical resources

Ideas for walls:

1. Each class to create a book of good examples to show what a 'good one' looks like. This could be attached/near to the wall and available for children to look at and add to over the course of a year.
2. Photos of children 'in action'
3. Relating maths learning to real life contexts and making this explicit so the children understand why mathematics is important and how it can be applied in day-to-day life.
4. Attaching maths resources to wall using treasury tags e.g. number squares, multiplication squares so children can use them or having them next to the working wall in trays, on tables or containers for children to have access to.
5. Higher order questions on display for children, teachers and TAs to refer to and use in lessons. E.g. how do you know? Can you explain your answer in a different way?
6. Number lines or washing lines like we have for talk 4 writing in every classroom (ensure that these do not obscure children's view of helpful info on the walls).

A working wall is...	A working wall is not...
<p>Situated close to where I most often teach; A place where children can find key information about their current learning; Added to over a series of lessons; A place where anyone can make a contribution; A storehouse of information and ideas – vocabulary, guidance, images, diagrams; Frequently changed to be current; Adapted to suit purpose; Age related; A place to display targets; Explicit acknowledgement of children’s contributions; A place that has visual impact; Confidence building; Constantly used and referred to; A place for planning / structure of children’s work; A teaching aid reinforcing teaching points;</p>	<p>A display; A permanent fixture; A receptacle for every bit of information relating to a topic/ series of lessons.</p>

Appendix 3

Target Pupils

Target Pupils enable staff, children and parents to focus in on children who are not making expected progress in order that their progress might be accelerated through a short period of intense focus.

These guidelines will support teachers to identify target pupils, provide the appropriate support for learning, and communicate with key people.

1. Identify a group of target children on Target Tracker in English and Maths who have not made the expected progress. This group should be a maximum of 6 pupils. Please note that this does not have to be limited to children not meeting age related expectations.
2. Identify short term targets that will act as the small, achievable steps to accelerate progress over the focus period.
3. Inform the children that they are in the focus group and when this focus will start and end.
4. Inform the parents of the children that their child has been identified for your next focus group. Share with them the start and end date and the short term targets. Provide guidance for appropriate support at home during this period.
5. Seat the focus children together for maths or English (and other cross curricular writing lessons). This group need to have targeted work planned for them in order to support their learning. This group need to have more time with adults to support and challenge them in comparison to the other children during this focus period.
6. When planning lessons the contexts that they select, the resources chosen to make learning meaningful, should be chosen with target pupils at the forefront of the thinking. 'What will hook them into learning?' is the key question, and this is where detailed knowledge of those pupils, their interests and enthusiasms, their barriers to learning, helps.
7. Target pupils should be asked more questions than other pupils during whole class teaching. For this to work the questions need to be carefully matched to the pupil. Where a teaching assistant is available it can be that they sit alongside such pupils and help them to rehearse responses.
8. Focus children must be encouraged to talk about their learning frequently. These opportunities will need to be planned for.
9. Teachers need to be explicit about the development of independence and responsibility, explaining to the children the importance of developing these skills and providing opportunities to use them. Part of high expectations is the expectation that children will take responsibility for their learning.
10. Regular feedback is required in order to accelerate progress. Pupils need to be aware of their successes and next steps. Teachers to keep a record of next steps for each focus child that is accessible for them to read each lesson.
11. Children and parents must be told of the impact that being in the focus group has had on progress, attainment and learning skills.