



Mathematics Policy

July 2021

Mission: To Gain

Vision

At Broad Heath our vision is for children to feel passionate and excited about maths and to develop an inquisitive mind and a positive attitude towards the subject. They are challenged and supported to reach new heights in maths, developing and using a rich vocabulary and taking pride in all aspects of their work. Children show resilience, and are not afraid of making mistakes, understanding that this is key to achieving success. They understand the relevance of maths and can apply their skills in other areas of the curriculum and in everyday contexts.

1. Aims of the National Curriculum:

"Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject." (National Curriculum 2014)

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 is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. 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. The purpose of mathematics in our school is to develop:

- competence and confidence in using and applying mathematical knowledge, concepts and skills
- an ability to solve problems, to reason, to think logically and to work systematically and accurately
- initiative and motivation to work both independently and in cooperation with others
- confident communication of maths where pupils ask and answer questions, openly share work and learn from mistakes
- an understanding of mathematics and mathematical language through a process of enquiry and investigation

3. Planning and resources

We aim to provide a stimulating and exciting learning environment that takes into account different learning styles and uses appropriate resources to maximise teaching & learning.

Breadth of study

Careful planning and preparation ensures that throughout the school children engage in:

- practical activities and games using a variety of resources, making use of outdoor areas
- problem solving to challenge thinking and develop depth of understanding
- individual, paired, group and whole class learning and discussions
- purposeful practice where time is given to apply their learning
- open and closed tasks
- a range of methods of calculating e.g. mental, pencil & paper, pictorial representations and manipulatives
- working with computers as a mathematical tool
- using online applications to enhance learning

Through our creative approach to teaching and learning we also seek to explore and utilise further opportunities to use and apply mathematics across all subject areas, something which is integrated in our foundation planning.

Long term planning

The National Curriculum for Mathematics 2014, Development Matters and the Early Learning Goals (Number, Shape Space & Measure) provide the long term planning for mathematics taught in the school.

Medium term planning

Years 1-6 use the White Rose Maths Hub schemes of learning as their medium term planning documents. These schemes provide teachers with exemplification for maths objectives and are broken down into fluency, reasoning and problem solving, key aims of the National Curriculum. They support a mastery approach to teaching and learning and have number at their heart. They ensure teachers stay in the required key stage and support the ideal of depth before breadth. They support pupils working together as a whole group and provide plenty of time to build reasoning and problem solving elements into the curriculum. These resources are supplemented with other resources from Third Space, Maths No Problem, Nrich, Testbase, Maths on Target.

Short term planning

The above schemes of learning support flipchart planning. Lessons plans and books are monitored regularly by the mathematics subject leader and SLT. EYFS planning is based on the medium term plans and delivered as appropriate to individual children with thought to where the children are now and what steps they need to take next.

All classes have a daily mathematics lesson where possible. In key stage one lessons are 45-60 minutes and in key stage two at least 60 minutes. An additional Arithmetic lesson is built into the timetable and maths activities are a core ingredient of Basic Skills.

Teachers of the EYFS ensure the children learn through a mixture of adult led activities and child initiated activities both inside and outside of the classroom. Mathematics is taught through an integrated approach.

Lessons

In all lessons, learning objectives and mathematical vocabulary are clearly displayed and discussed.

The emphasis in lessons is to make teaching interactive and lively, to engage all children encouraging them to talk about mathematics. Lessons involve elements of:

- Instruction - giving information and structuring it well;
- Demonstrating - showing, describing and modelling mathematics using appropriate resources and visual displays;
- Children having opportunities to experience maths through a CPA approach.
- Explaining and illustrating - giving accurate and well-paced explanations;
- Questioning and discussing; Consolidating;
- Independent, partner and group work.
- Reflecting and evaluating responses - identifying mistakes and using them as positive teaching points;
- Summarising - reviewing mathematics that has been taught enabling children to focus on next steps

Pupils' Records of work

Children are taught a variety of methods for recording their work and are encouraged and helped to use the most appropriate and convenient. Children are encouraged to explore with manipulatives, use mental strategies and their own jottings before resorting to more formal written methods. Children's own jottings to support their work is encouraged throughout all year groups.

Marking

Marking of children's work is essential to ensure they make further progress. Work is marked against success criteria, in line with the school marking policy, and usually includes next steps of a challenge. Children are encouraged to self-assess their work and given time to read teachers' comments and make corrections or improvements. Responses to marking are made as close to the work as possible, ideally at the start of the next lesson. Some pieces of work in mathematics can be marked by children themselves, exercises involving routine practice with support and guidance from the teacher - particularly in years 5 & 6.

4. Assessment

Assessment is an integral part of teaching and learning and is a continuous process. Assessment takes place at three connected levels: short-term, medium-term and long-term. These assessments are used to inform teaching in a continuous cycle of planning, teaching and assessment.

Daily:

Teachers make assessments of children daily through;

- regular marking of work
- analysing errors and picking up on misconceptions
- asking questions and listening to answers
- facilitating and listening to discussions
- making observations

These ongoing assessments inform future planning and teaching. Lessons are adapted readily and short term planning evaluated in light of these assessments. Learners will also be taught to assess and evaluate their own achievements by recognising successes, learning from their mistakes and identifying improvements.

Medium term:

Termly assessments are carried out across the school using a range of assessment materials and methods. These materials are used alongside judgements made from class work support teachers in making a steps assessment for each child which in line with the assessment policy which they enter onto Cornerstones. The statements in Cornerstones cover the mathematics objectives for the year group. This process of careful tracking adds to helping teachers form an assessment for each child.

Pupil Progress meetings are timetabled each term for all classes. Progress of pupils is discussed and appropriate intervention considered and put in place where appropriate.

Long term

Towards the end of the school year, final assessments will be carried to assess and review pupils' progress and attainment. This enables attainment to be tracked year on year and will inform groupings and intervention programmes. These are made through compulsory National Curriculum mathematics tests for pupils in Years 2 and 6 (following National directives). In Years 3,4, and 5, teachers draw upon their class records of attainment and supplementary notes and knowledge about their class to produce a summative record.

Resources

Classrooms are well stocked with resources to promote a CPA approach. Some additional mathematical equipment and resources are stored centrally.

5. Equal Opportunities

Positive attitudes towards mathematics are encouraged, so that all children, regardless of race, gender, ability or special needs, including those for whom English is a second language, develop an enjoyment and confidence with mathematics. This policy is in line with the school's "Education and Inclusion Equality" policy.

The aim is to ensure that everyone makes progress and gains positively from lessons. Lessons involving a blend of visual, aural and kinaesthetic elements will benefit all children. Differentiated questions are used in lessons to help children, along with planned support from Teaching Assistants and other adults.

6. Special educational needs & disabilities (SEND)

Daily mathematics lessons are inclusive to pupils with special educational needs and disabilities. Where required, children's IEP's incorporate suitable objectives from the National Curriculum for Mathematics or Development Matters and teachers keep these in mind when planning work. These targets may be worked upon within the lesson as well as on a 1:1 basis outside the mathematics lesson. Maths focused intervention in school helps children with gaps in their learning and mathematical understanding. These are delivered by trained support staff and overseen by the SENCO and/or the class teacher.

Within the daily mathematics lesson teachers have a responsibility to not only provide differentiated activities to support children with SEND but also activities that provide sufficient challenge for children who are high achievers. It is the teachers' responsibility to ensure that all children are challenged at a level appropriate to their ability.

7. Intervention programmes

Throughout the year, the Maths co-ordinator will liaise with SLT, the SENCO and class teachers to identify children who need extra support to move towards ARE or GD. Interventions will be targeted for children who are seen to be falling short of their expected 'levels' or making insufficient progress. There are a number of outside support teachers as well as HLTAs in school who have good subject knowledge of Mathematics and are trained to work with small groups in different year groups. They work co-operatively with teachers and closely with the maths co-ordinator who meets regularly to talk about children's progress. In addition Teachers and Teaching Assistants have attended INSET to help them provide effective support to targeted children within the daily Maths lesson.

8. Booster sessions

Targeted groups of Year 5 and 6 children receive additional after-school mathematics booster sessions in preparation for end of year SATs. These sessions are practical and address misconceptions, along with stretching children's thinking about different mathematical concepts. Saturday School runs for 6 weeks March - May to support children's preparation for SATs. These sessions also include an element of wellbeing.

9. More Able

Children are identified by class teachers at the beginning of each school year and are tracked in Cornerstones. These children will be accommodated for in daily mathematics lessons, through exposing them to a more challenging "deeper view" of the Age Related content for their year group. This can be achieved through addressing the same Curriculum objective as their peers but through a wider context by using and applying their skills or tackling the same problems in more complex ways. This will ensure higher achievers still demonstrate the Age Related Expectations for their year group but gain a mastery of each area of the Maths Curriculum at a greater depth. There are also opportunities for these children to take part in More Able challenge days and also the Primary Maths Challenge in November.

10. Homework

We recognise the importance of making links between home and school and encourage parental involvement with the learning of mathematics.

Homework provides opportunities for children

- to practise and consolidate their skills and knowledge,
- to develop and extend their techniques and strategies, and
- to share their mathematical work with their family
- to prepare for their future learning.
- Mathematics homework is given weekly and is used to support objectives completed in class.
- Year 2 and 6 are given additional homework in preparation for SAT's.

See Homework policy for further details.

11. Home/School Links

We see the relationship with parents very important in supporting their children's mathematics skills. We involve the parents in their children's learning by:-

- Providing regular parent's meetings which give them verbal and written information on their child's progress and their targets for the future.
- Providing information on the school website and the class blog about past, current and future learning
- Providing an end of year report which outlines progress and attainment.
- Providing links to relevant Maths websites through our Learning Platform.
- All children have login access to Times Tables Rockstars, Education City and the School Blog. Year 6 also have access to Mathletics.

In school RRK and the pastoral team work closely with parents to provide support and guidance so parents work together with Teachers to ensure their children can achieve at home as well as at school.