



Maths Policy

June 2019

Marshgate Primary School

Maths Policy

The importance of Mathematics

As a school, we want to enable the children to see that mathematics provides a way of viewing and making sense of the world. It can be used to analyse and communicate ideas and information effectively and to tackle a range of practical tasks and real life problems. We use the National Curriculum for Mathematics (2014) as the basis of our mathematics programme and this policy outlines the aims and purpose of the teaching, organisation and management of mathematics taught and learnt at Marshgate Primary School. The implementation of this policy is the responsibility of all the teaching staff.

Parental involvement should include monitoring homework completion, attending curriculum and information giving sessions and encouraging enthusiasm for and a 'can do' attitude to mathematics.

Aims / Ambition

Our aims in teaching Mathematics are that the children will

- Enjoy the subject, study it with a sense of achievement and be taught so that they can reach their full potential.
- Achieve a high standard in all maths curriculum areas and gain a secure understanding of knowledge, skills and concepts.
- Use and apply these skills with confidence and understanding in real life scenarios/problems and within mathematics itself.
- Develop persistence and resilience to work through challenging problems or situations involving maths using a variety of approaches.
- Develop an ability to think logically and to use mathematical language with confidence and understanding.
- Have access to stimulating, appropriate maths activities that include aspects of creativity, inquiry and collaboration.

Mathematics in the Foundation Stage (See Early Years Policy)

The teaching of mathematics in the Foundation Stage follows the EYFS Statutory Framework. Early Learning Goals outline the knowledge, skills, understanding and attitudes that children will need in order to achieve their mathematical goals. These goals are intended to be achieved by most children by the end of the Foundation Stage. The carefully planned and structured curriculum provides opportunities for all children to develop their understanding of:

- Skills in counting and the value of numbers
- Using numbers to solve problems, use money and calculate more or less
- Describing shapes, spaces, and measures (size, weight, capacity, position, distance, time)

Within a broad range of contexts, the children will learn, practice, talk and enjoy mathematical activities. The Foundation Stage curriculum prepares the children for the curriculum in Key Stage 1 by introducing elements of the curriculum and gradually building up towards a full maths session towards the end of Reception.

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Mathematics within separate Year Groups

The mathematics curriculum is organised as a discrete subject, yet there are many potential cross-curricular activities. It is taught in year groups, although there are some opportunities for both able pupils and those with specific difficulties to work in separate groups.

The school will follow the requirements of the National Curriculum as set out in:

Mathematics programmes of study: key stages 1 and 2: National curriculum in England (DFE, 2013)

Below are areas covered by each Year group in the curriculum (please see National Curriculum for sub-categories under each heading):

Year 1

Number

Measurement

Geometry

Years 2, 3, 4 & 5

Number

Measurement

Geometry

Statistics

Year 6

Number

Measurement

Geometry

Statistics

Ratio & Proportion

Algebra

Processes will include:

Playing

Sorting

Matching

Reflecting

Making patterns

Visualising

Explaining thinking

Investigating

Proving

Being systematic

Making conjectures

Asking questions

Estimating

Analysing problems

Using symbols

Convincing others

Ordering

Generalising

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Strategies for teaching

To provide adequate time for developing maths skills each class will provide a daily mathematics lesson. This may vary in length but will usually last around 45 minutes in Key Stage 1 and 60 minutes in Key Stage 2.

Most (but not all) Mathematics lessons will have a structure of;

- An oral, mental or arithmetic starter for around 10 minutes
This will include whole class work to rehearse, sharpen and develop mental, oral and arithmetic skills.
- The main activity for about 25 minutes in KS1 and 40 minutes in KS2
This will include both teaching input and pupil activities and a balance between whole class, grouped, paired and individual work.
- The plenary session for approximately 10 minutes
This will involve work with the whole class to clear up misconceptions, identify progress, to summarise key facts and ideas, to make links to other work and to discuss next steps.

(There is an acknowledgement that in some lessons this structure will look entirely different, depending on the needs of the pupils and aims of the lesson.)

Arithmetic (both mental and written) is a key feature, with children being taught a range of strategies to work out answers as well as demanding a quick recall of simple mathematical facts to work towards fluency. The teacher gives demonstrations and explanations, with an emphasis on the use of appropriate mathematical language and engages in whole class interactive teaching, involving:

- Whole class and group discussions
- Practice to consolidate specific skills
- Problem solving and investigational activities in order to learn how to break down a problem
- Practical activities
- Mathematical games and puzzles.

The use and application of mathematical principles underpins the whole of mathematical teaching and learning. Opportunities are given so that pupils can apply their knowledge to a wide range of real life situations and challenging mathematical problems. They need to be able to choose appropriate equipment and methods for the task and to enable them to communicate and justify their findings in a manner appropriate to their age and ability, showing increasing concern for clarity and accuracy of meaning.

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Dimensions within mathematics teaching

In Key Stage 1 and Years 3 and 4, all children will be taught in their own classroom with their own teacher and in years 5 & 6, children will be put into Maths sets across the year group according to their ability. Where appropriate children may also be set across year groups.

Able pupils

Able pupils will normally work on the same topics as the rest of the class, but activities must be planned to stretch their abilities. This may be done by providing more demanding questions and investigations, often with a more open-ended approach. Pupils may at times be working on the objectives from the year above their peers or working within groups on extension activities. Special arrangements will be made for an exceptionally gifted pupil who may have their own individualised programme to follow with more challenging problems to tackle.

Lower attaining pupils

Lower attaining pupils will normally work on the same topics as the rest of the class, but activities must be differentiated and planned to enable them to succeed. They may at times be working from the objectives for the year below their peers. We ensure that all children are enabled to participate as fully and effectively as possible within the curriculum and the statutory assessment arrangements.

Special Educational Needs

Those children with an Educational Health Care Plan (EHCP) or SEN Support Plan with an identified need in Mathematics should have specific targets each term. Teachers will ensure all pupils are able to access their daily mathematics lessons. All children as well as those with SEN benefit from the emphasis on oral and mental work and participating in watching and listening to other children, demonstrating and explaining their methods; this is important part of teaching and learning mathematics at Marshgate Primary School.

Equal Opportunities

All children have equal access to mathematical activities. We pay particular attention to ensuring there is no gender bias in materials or in access to resources, including IT. Teachers should pay attention to the equal distribution of their questions across all groups, often by using techniques that call on random children rather than those with their hands up. Any displays and references to mathematics in society, should show positive role models of gender, race, ethnicity and disabilities.

IT

The use of IT is an integral part of mathematics teaching and learning. Teachers will use IT (including interactive whiteboards) in various ways to support the teaching and motivate the children's learning. It will be used in a daily mathematics lesson when it is the most efficient way of meeting the lessons' objectives.

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Homework (See Homework Policy)

The daily mathematics lesson will provide opportunities for the children to practice and consolidate their skills and knowledge, to develop and extend their techniques and strategies and prepare them for future learning. These homework activities will be short and focussed and will be referred to in future lessons. In KS2, children are set interactive activities from My Maths or other appropriate IT software every two weeks. Resources are provided (e.g. Homework club) to those children not able to access a computer at home.

Spiritual, Moral, Social and Cultural

There are many opportunities to develop a sense of wonder in mathematics, e.g. in structure and patterns of shape and number, in concepts such as probability and infinity. Teaching should also emphasise that the mathematics we know and use today is the result of human activity over a very long period of time and in many diverse cultures across the world.

'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, 2013)

Maths across the curriculum

Marshgate adopts a themed approach within some areas of the curriculum. Therefore Maths will frequently be linked to other subject areas and topics. This provides children with the opportunity to experience the use and application of Maths in a real life context. We encourage the children at Marshgate to identify the mathematical skills needed to solve given problems, which leads to a better understanding of the purpose of the skills which they have been taught.

Resources

Relevant resources which are needed in daily lessons are kept in individual classrooms and there is a further central resource area for larger or less frequently needed resources. All resources are clearly labelled.

The role of Learning Support Practitioners

- In the oral, mental and arithmetic starters the Learning Support Practitioner (LSPs) should sit with an identified group of children and should model what the teacher is doing using similar or adapted resources.
- In the main activity they should be assisting a group of children to complete a piece of work planned by the teacher.
- In plenaries they should encourage pupils they have worked with to feed back and contribute to the overall session.
- In many year groups, teachers will identify children who require intervention group work to close gaps in their maths understanding. LSPs will often be responsible (under direction from the teacher) for delivering these groups, both in maths lesson time and across other times of the school day.

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All the children have an equal entitlement to teaching time from the teacher. Therefore the teaching assistant should not always work with the same group of pupils. It may be appropriate on some occasions for a group to be with the LSP during the main activity group work. However, teachers must take care to ensure these children do not miss valuable teacher input during starters and plenaries and have access to these whenever they take place.

Planning

Planning will take place at three connected levels: short-term, medium-term and long-term. Medium term plans for the year are based on the objectives contained in the 2014 National Curriculum. Weekly and daily planning is completed using a Marshgate Primary School pro-forma in line with the recommendations of the Curriculum.

Assessment (See Assessment policy)

The assessment of children's work is on-going to ensure that understanding is being achieved and that progress is being made. Assessments will be used to inform teaching in a continuous cycle of planning, teaching and assessment.

Formative assessment is carried out informally during the course of teaching. It enables the teacher to identify a child's understanding and progress in particular aspects, to inform their immediate teaching and to plan for their coming lessons.

Medium term assessments will take place at the end of each term in Key Stage 1 and 2 and will assess some of the key objectives that have been covered during the Autumn, Spring & Summer terms. The outcomes will be recorded on 'Target Tracker' software.

Summative assessment is carried out towards the end of the school year to assess and review pupils' progress and attainment. At the end of the Foundation Stage children will complete Foundation Stage Profiling Assessments. At the end of each Key Stage children will have compulsory National Curriculum Mathematics tests for pupils in Year 2 and Year 6. Teachers will be expected to provide an overall assessment of each child's national curriculum attainment in mathematics at the end of each school year.

Target setting

The aim for all children is that they make a year's worth of progress (according to Target Tracker bands) across the year. Teachers use specific curriculum targets to assess what specific areas of maths children are accomplished in and what areas for improvement they have over the short and longer term. There is an acknowledgement when setting targets, that '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' (National Curriculum, 2013). The teacher will make use of school assessments, as well as ongoing judgements based on class work and seek the child's input as to next step targets to improve in maths.

Monitoring and evaluation

The purpose of monitoring and evaluation activities is to raise the overall quality of teaching and levels of pupil attainment. The mathematics co-ordinator and Headteacher

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will monitor the quality of teaching and learning as part of the school's self-evaluation policy. Monitoring will include:

- Scrutiny of planning
- Quality of teaching through lesson observation and feedback
- Moderation of standards in children's work
- Evaluation of children's attainment against targets

As part of external monitoring, the School Improvement Partner, maths consultants and the maths governor may carry out similar evaluations as well. The quality of mathematics in the school will also be inspected as part of any Ofsted inspection of the school as whole.

Management of Mathematics

The role of the mathematics co-ordinator is to

- Take the lead in policy development and review, including the continuing successful implementation of the National Curriculum.
- Support colleagues in the development of weekly plans and in assessment and record keeping activities.
- Keep up-to-date on local and national initiatives and disseminate information.
- Take responsibility for the purchase and organisation of mathematical resources.
- Be a point of contact to the whole school community (teachers, SLT, children, parents and governors) in all things maths-related.
- Analyse pupils' test results to inform future policy, set school targets for mathematics in conjunction with the senior management team, and to assist staff in setting individual pupil and group targets.
- Take the lead in writing the mathematics section of the School Development Plan.
- Encourage the professional development of staff.
- Lead by example in the way they teach in their own classroom.
- Prepare, organise and lead INSET, with the support of the Headteacher.
- Work co-operatively with the SENCo.
- Work alongside the Headteacher monitoring children's learning as well as teaching plans and quality of teaching.
- Discuss with the Headteacher and the governors the progress of maths delivery across the school.