



# Maths Policy

## Introduction

This policy outlines the teaching, organisation and management of mathematics taught and learnt at Monksdown Primary School. The policy is based on the 2014 expectations and aims of the 'New Curriculum' for mathematics and the Early Years 'Development Matters' EYFS document. This ensures continuity and progression in the learning and teaching of mathematics. The policy has been drawn up by the maths team, shared and discussed with all staff and has the full agreement of the Governing Body.

## Purpose

Mathematics is essential to everyday life, critical to science and necessary for financial literacy and all forms of employment. Therefore every child should be able to think and solve problems mathematically by using the appropriate skills, concepts and knowledge. They should be provided with rich and enjoyable experiences related to their individual needs and to the wider requirements of society. It should be flexible, motivating all pupils, thus encouraging success at all levels.

## Aims.

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.
- Solve problems by applying their mathematical skills 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.

In addition to the national curriculum's aims we also aim for all children within our school to:

- Foster positive attitude towards mathematics by developing confidence, independence and persistence.
- Have self-confidence in their ability to deal with mathematics.
- Be able to work systematically, co-operatively and with perseverance.
- Be able to think logically and independently.
- Experience a sense of achievement.
- Have equality of opportunity regardless of race, gender or ability.
- Understand the appropriate underlying skills, concepts and knowledge of number, measurement, shape, space and data handling.
- Be able to communicate with peers and adults, ideas, experiences, questions, clearly and fluently, using appropriate mathematical vocabulary.

- Develop the use of mental calculations and efficient strategies to work out the answers.
- Use appropriate resources independently.
- Understand the importance of Mathematics in everyday life, especially in relation to essential life skills, such as money and telling the time.

All our school staff confidently promote our aims in a range of real life and cross curricular experiences, ensuring Maths is an enjoyable experience.

The programmes of study are, by necessity, organised into distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems.

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, their mastery of the content and their readiness to progress to the next stage.

Pupils who master concepts rapidly should be challenged through rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, through additional practice to master the skill, before moving on.

### **Teaching and Learning of Mathematics.**

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

The scheme 'Mathematics Mastery' is currently being rolled out throughout the school. It is currently only in Reception to Year 4.

### **Nursery**

Work undertaken within the Nursery is guided by the requirements and recommendations set out in the Early Years 'Development Matters' EYFS document. All children are given ample opportunity to develop their understanding of mathematics in all areas of the curriculum. Lessons in the Early Years aim to do this through varied child-initiated and adult-led activities that allow children to use, enjoy, explore, practise and talk confidently about mathematics. Staff support the children in developing their understanding of problem solving, reasoning and numeracy in a broad range of contexts. To prepare the children for the transition to Reception, planning for reception pupils will begin to reflect the KS1 curriculum, from the summer term. A daily whole class maths lesson will be taught.

### **Reception, Key Stage 1 and Lower Key Stage 2.**

The 'Maths Mastery' approach to teaching Maths is the underlying principle of Mathematics Mastery. Instead of learning mathematical procedures by rote, we want pupils to build a deep conceptual understanding of concepts which will enable them to apply their learning to different situations. We promote a Growth Minded belief, that ability can be developed over time through effort, dedication, perseverance and hard work.

The Mathematics Mastery curriculum is cumulative – each school year begins with a focus on the concepts and skills that have the most connections, which are then applied and connected throughout the school year to consolidate learning. This gives pupils the opportunity to ‘master Maths’; by using previous learning throughout the school year, they are able to develop mathematical fluency and conceptual understanding. Children are encouraged to represent ideas in many different ways, using objects and pictures to represent abstract concepts.

Problem solving is at the heart of the masters approach, so we make sure to dedicate sufficient time to each new concept so every pupil can gain the reasoning they need to solve new problems in unfamiliar contexts. In Mathematics Mastery, our pupils are expected to all solve the same investigations by the end of the lesson, meaning the key concepts and objectives are met by all pupils. Instead of accelerating higher attainers onto new content, teachers in our partnership differentiate through depth, to develop pupils’ conceptual understanding.

## **Upper Key Stage 2**

All children are taught within their classes alongside their peers through differentiated group work. Help desks are set up in or around all classes and used to support the children’s independence and allow the children to choose their own resources. Mental maths should be incorporated throughout all lessons and mental strategies for solving all mathematical concepts will be discussed based on continuous assessment for learning. Conceptual misconceptions will be addressed immediately.

Teachers use the national curriculum to develop their long term plans. Short term plans are developed using teachers own ideas and published resources including Active Learn, White Rose Hub and NCETM. Number is the main focus of Key Stage 2 and other areas are taught cross-curricular and through longitudinal learning.

## **Information and communication technology (ICT)**

Children from Reception are supported in their learning by the use of RM easimaths. This programme offers the children the opportunity for regular personalised learning sessions, which is an effective and motivating way of meeting mathematical objectives. It supports pupils who are finding mathematics challenging and extends the more able children. Teachers are able to use the data collected to set targets and highlight strengths and weaknesses for individuals, groups and whole classes.

All staff have access to Active Learn which offers interactive programmes which can be used in lessons. In Reception and Key Stage 1, the Mathematics Mastery scheme also includes interactive presentations for each unit to be used at the teacher’s discretion.

In preparation for the end of Lower Key Stage 2 times table test, all children now have access to an app called Times Table Rockstars, which can be accessed at home and in school. This is a carefully sequenced programme of times table practice, where the children rehearse selected times tables set to their level to build fluency.

## **Spoken language**

The national curriculum for mathematics reflects the importance of spoken language in pupils’ development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof. They must be assisted in

making their thinking clear to themselves as well as others and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

This is a large focus of the Mathematics Mastery scheme. Each lesson has a talk task which helps develop pupils' Mathematical vocabulary (see Mathematics Mastery progression in calculation policy; Mathematical Language Section p.3).

An important part of our Mathematics curriculum is daily Maths Meetings, which are used to develop real life Maths, and consolidate key areas of Mathematics. These meetings last 10-15 minutes and are a positive part of our day. No recording takes place in these meetings, instead songs, chants and reinforcement of basic skills for 'Numeracy for Life'.

### **Inclusion and Equal Opportunities**

All teaching and non-teaching staff at Monksdown Primary School are responsible for ensuring that every pupil, regardless of gender, race, culture, background and ability have the opportunity to experience education at an appropriate and challenging level. To ensure that pupils experience high standards of success, Geography needs to be taught with regards to pupil's abilities to ensure progress. We aim to identify and minimise barriers to learning and take account of gender, ability, disability, social, cultural, and linguistic background when planning lessons. Provision is made to enable all pupils to participate effectively in curriculum and assessment activities. A wide range of gender specific and cultural images that challenge stereotypes will be used.

This policy ensures that certain aspects of Geography are not seen as more appropriate for boys or girls. Individual teachers consider carefully the groupings they have. These might depend on the experiences the children have had in their home environments.

### **Differentiation for SEN, EAL and G&T children.**

All groups of pupils must be well catered for in mathematics lessons and this is achieved in a number of ways, such as:

- Setting challenging age related knowledge, reasoning and problem solving tasks based on systematic, accurate assessment of pupils' prior skills, knowledge and understanding.
- Support and intervention; systematically and effectively checking pupils' understanding throughout lessons.
- Ensuring that marking and constructive feedback is personal, frequent and of a consistently high quality - enabling pupils to understand how to improve and develop their work - with designated time for children to respond to feedback. When possible instant feedback is given during the lesson.
- Appropriate resources are available for all pupils to use as required.
- Intervention programmes/extra teacher support delivered where needed both in class and through extra sessions planned in addition to maths lessons.
- Visual stimulus/aids are provided for our hearing impaired and English as additional language pupils. A specialist member of staff is also employed to develop and target these pupils further.

## **Progression of calculation methods**

Reception, Key Stage 1 and Lower Key Stage 2 follow the Mathematics Mastery Progression in Calculation Policy. This will be filtered through the school as the scheme is.

Upper Key Stage 2 follow the Progression in Calculation Methods Policy, based on the Liverpool Calculation Policy to ensure continuity and consistency throughout the key stage.

## **Assessment**

Our assessment procedures have been adapted to reflect the guidance given for assessing without levels. Assessment for learning is an integral part of our everyday teaching. It is the responsibility of the class teacher to assess all pupils in their class.

Short-term assessments are used to check understanding and give the teacher information, in order to adjust the day to day planning. This is mainly achieved through questioning, over the shoulder marking, observations, T.A feedback and pupil self-assessment.

Medium-term assessments take place each term and are used to inform teachers planning for the next term. They also highlight strengths and weaknesses within a group or class. Personal targets are set from this and children's progress can be monitored, ensuring children are on track to attain their end of year targets. This assessment is recorded on Target Tracker and the data collected by the Maths Lead. Pupil progress meetings take place with the SLT to discuss children who have not made the expected progress and what actions need to be taken to accelerate pupil's progress. Key Stage 1 also use end of half term tests to assess if the child has grasped previous concepts taught. Long-term assessments take place during the final summer term to assess and review pupil's progress and attainment. Pupils in years 2 and 6 sit end of key stage SATs. Pupils in Years 3-5 use published assessment materials. Teachers draw upon their records of attainment for the key objectives, supplementary notes and knowledge to produce a summative record. This is then reported to parents and the child's next teacher.

## **Marking**

The main purpose of teacher feedback is to ensure that as children progress through the school they benefit from constructive guidance and next step questioning to challenge and consolidate their learning. Mathematical vocabulary must be used in the teacher's verbal comments and children must be given time to respond to feedback and correct mistakes in their purple pen. Verbal feedback is to be given to the children through the use of over shoulder marking.

## **Role of the maths team**

The purpose of the maths team is;

- To lead and manage mathematics throughout the school.
- To secure high quality teaching
- To monitor effective use of resources
- Support the SLT to ensure the highest standard of learning and achievement of all pupils
- To train and coach staff on Mathematical pedagogy within school

The team is responsible to the head teacher and the main duties for the team are outlined below.

- To be positive role models and demonstrate good practise.
- To keep the written policy documentation up to date and develop and keep under review the scheme of work in line with the requirements of the national curriculum.
- To encourage and support staff in the implementation of the agreed procedures.
- To closely monitor the progression of activities and consistency of approach across classes, year groups and key stages.
- To audit and manage the maths resources, ensuring they are readily available and well maintained.
- To monitor standards in maths across the school, through classroom observations, work scrutiny, discussion with pupils and data analysis.
- To contribute to whole school curriculum improvement by advising the SLT on areas of strength and areas of development and to identify clear targets to improve and sustain pupil achievement.
- Lead professional development in maths in accordance with staff development needs and encourage the sharing of ideas.
- To keep informed of national development in maths through reading relevant materials and attending courses as appropriate.
- Liaise with local schools in the network in order to facilitate continuity of a approach across local schools.
- To work closely with the SENCO and assessment co-ordinator to identify children who may be working way below or well above the overall level in their groups or class and to plan the next steps for learning.
- To work closely with staff from our schools and local schools to moderate maths, to assist with new assessment procedures.
- To complete maths action plan that fits in with the whole school plan for improvement.

### **Policy Review**

- This policy was last reviewed: Summer 2019
- Date of next review: Summer 2021