# Policy on Mathematics

## 1 Aims and objectives

1.1 Mathematics teaches children how to make sense of the world around them through developing their ability to reason mathematically, calculate and solve problems. It enables children to understand relationships and patterns in both number and space in their everyday lives. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many cultures to the development and application of mathematics.

1.2 Our objectives in the teaching of mathematics are:

* to promote enjoyment of learning through practical activity, exploration and discussion;
* to promote confidence and competence with numbers and the number system;
* to develop the ability to solve problems through decision-making and reasoning in a range of contexts;
* to develop fluency, mathematical reasoning and competence in solving increasing sophisticated problems;
* to use mathematical language correctly
* to develop a practical understanding of the ways in which information is gathered and presented;
* to explore features of shape and space, and develop measuring skills in a range of contexts;
* to help children understand the importance of mathematics in everyday life;
* to develop the cross-curricular use of mathematics in other subjects

## 2 Teaching and learning style

2.1 Our principal aim is to develop children's knowledge, skills and understanding. During our daily lessons, we encourage children to ask and answer mathematical questions. They have the opportunity to use a wide range of resources, such as: number lines, number squares, digit cards and small apparatus to support their work. Mathematical Dictionaries are available in all Year 2 to Year 6 classes. Computing is used in mathematics lessons for modelling ideas and methods. Wherever possible, we embed the mathematical concepts into our topic and/or everyday situations.

2.2 In all classes, children have a wide range of mathematical abilities. We recognise this fact and give the pupils opportunities to choose an appropriate challenge for them to complete, which may include working collaboratively on open-ended problems or investigations. We use classroom assistants to support some children, and to ensure that work is matched to the needs of individuals.

2.3 At London Meed, we use a Progression in Calculation Policy to ensure consistency throughout the school.

2.4 Each class teacher is responsible for:

* teaching a mathematics lesson every day
* having a clear focus on direct, instructional teaching and interactive oral work (TPS) with the whole class and targeted groups
* an emphasis on mental calculation in every lesson

2.5 Each class organises a daily lesson of between 45 and 60 minutes for mathematics. 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.

## 3 Mathematics curriculum planning

3.1 Mathematics is a core subject in the National Curriculum, and we use the New National Curriculum (2014) for mathematics as the basis for implementing the statutory requirements of the programme of study for mathematics.

3.2 We use the statements to ensure complete coverage of the curriculum.

3.3 It is the class teacher who completes the weekly maths plans, using the school’s planning format. These weekly plans list the specific learning objectives and expected outcomes for each lesson, and give details of how the lessons are to be taught. The class teacher keeps these individual plans, and the class teacher and subject leader often discuss them on an informal basis.

3.4 We plan the activities in mathematics so that they build on the children's prior learning. While we give children of all abilities the opportunity to develop their skills, knowledge and understanding, we also plan progression into the scheme of work and challenge for all children.

## 4 The Foundation Stage

4.1 Mathematics is taught in our reception classes. We relate the mathematical aspects of the children’s work to the objectives set out in the Early Years Curriculum, which underpin the curriculum planning for children aged three to five. We give all the children ample opportunity to develop their understanding of number, measurement, pattern, shape and space, through varied activities that allow them to enjoy, explore, practise and talk confidently about mathematics and aim to achieve the Early Learning Goals by the end of the Summer Term.

## 5 Contribution of mathematics to teaching in other curriculum areas

5.1 English

 The teaching of mathematics contributes significantly to children's understanding of English in our school by actively promoting the skills of reading, writing, speaking and listening. For example, in mathematics lessons, we expect children to read and interpret problems, in order to identify the mathematics involved. They are also improving their command of English when they explain and present their work to others. In English lessons, too, maths can contribute: younger children enjoy stories and rhyme that rely on counting and sequencing, while older children encounter mathematical vocabulary, graphs and charts when reading non-fiction texts.

5.2 Science

 Investigative science demands a host of mathematical skills and knowledge. Most investigations and fair-tests require measurements to be made. In KS1, children measure mass and length using standard and non-standard units when recording observations. In KS2 children use accurately measured standard units of time, length, mass and capacity to quantify observations. Often these results are presented in the form of charts and graphs and are used to support the children’s conclusions.

5.3 Personal, social and health education (PSHE) and citizenship

 Mathematics contributes to the teaching of PSHE and citizenship. The work that children do outside their normal lessons encourages independent study and helps them to become increasingly responsible for their own learning. The planned activities that children do within the classroom encourage them to work together and respect each other's views.

5.4 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. We group children so that they work together, and we give them the chance to discuss their ideas and results.

## 6 Mathematics and Computing

6.1 Computing enhances the teaching of mathematics significantly, because it is particularly useful for mathematical tasks. It also offers ways of impacting on learning which are not possible with conventional methods. Teachers can use software to present information visually, dynamically and interactively, so that children understand concepts more quickly. All children use Computing to enhance their mathematical learning, for example various mathematical games and apps on I pads and computers.

## 7 Mathematics and inclusion

7.1 At our school, we teach mathematics to all children, whatever their ability and individual needs. Mathematics forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our mathematics teaching, we provide learning opportunities that enable all pupils to make good progress. We strive hard to meet the needs of those pupils with special educational needs, those with disabilities, those with special gifts and talents and those learning English as an additional language, and we take all reasonable steps to achieve this. For further details, see separate policies: Special Educational Needs; Disability Discrimination; Gifted and Talented Children; English as an Additional Language (EAL).

7.2 Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, differentiation – so that we can take some additional or different action to enable the child to learn more effectively. Assessment against the Target Tracker statements allows us to consider each child's attainment and progress against expected national standards.

7.3 We enable all pupils to have access to the full range of activities involved in learning mathematics, including regular outdoor learning activities for maths.

When progress falls significantly outside the expected range, the child may have special educational needs (SEN). Intervention through SEN support will lead to the creation of a Special Provision Plan. This may include, as appropriate, specific targets relating to mathematics.

## 8 Assessment for learning

8.1 Teachers will assess children's work in mathematics from three aspects (long-term, medium-term and short-term). We use short-term assessments to help us adjust our daily plans. These short-term assessments are closely matched to the teaching objectives. Every half-term, the teachers identify the children on Target Tracker that are not making expected progress and put in short-term intervention programs and pre-teaching activities to accelerate their progress.

8.2 We make medium-term assessments to measure progress against the key objectives, and to help us plan the next units of work. Children’s individual assessments are entered onto the Target Tracker every half term and provision for different groups adjusted accordingly.

8.3 We make long-term assessments towards the end of the school year, and we use these to assess progress against school and national targets. We can then set targets for the next school year and make a summary of each child's progress before discussing it with parents and carers. We pass this information on to the next teacher at the end of the year, so that s/he can plan for the new school year. We use the national tests for children in Year 2 and Year 6, for the current year 2017. We also make termly assessments of children's progress measured against the level descriptions of the National Curriculum.

8.4 Teachers and SLT meet regularly in order to discuss pupil progress.

8.5 Children are encouraged to make judgements about how they can improve their own and each other's work on a regular basis through individual and peer-assessment and oral feedback.

## 9 Resources

9.1 All classrooms have a number line, maths vocabulary and a wide range of appropriate small apparatus. Calculators and a variety of audio-visual aids are available from the central storage area. The library contains a number of books to support children's individual research. A range of software is available to support work with the computers and Ipads.

9.2 All teachers have an area within the classroom dedicated to mathematics resources. This area is easily accessible to all children and allows them to become familiar with all resources. There is also a working wall area within every classroom that the children can access. This needs to be updated regularly in accordance with the area of maths being taught at the time. Resources which are not used or required regularly are stored centrally in the mathematics cupboard in the small hall.

## 10 Monitoring and review

10.1 The coordination and planning of the mathematics curriculum are the responsibility of the subject leader, who also:

* supports colleagues in their teaching, by keeping informed about current developments in mathematics, and by providing a strategic lead and direction for this subject;
* prepares, organises and provides school based workshops and staff meetings;
* assists with the monitoring of teaching and planning and the analysis of SATs results;
* prepares, reviews and implements school policy documents and guidelines taking into account the recommendations of the National Curriculum;
* introduces, organises and maintains the school’s mathematics resources;
* takes responsibility for own professional development by attending courses and keeping up-to-date with current developments within mathematics education;
* liaises with mathematics subject leaders in other schools through attendance of local network meetings;
* provides an example to the school by taking a lead in teaching mathematics and classroom organisation;
* maintains contacts beyond school with mathematics consultants, advisory staff and other outside agencies;
* ensures equality of opportunity for all pupils.

10.2 The quality of teaching and learning in mathematics is monitored and evaluated by the SLT as part of the school’s agreed cycle of lesson observations;

10.3 A named member of the school’s governing body is briefed to oversee the teaching of mathematics;

10.4 This policy will be reviewed at least every two years.

**11 Staff development**

 All staff are encouraged to develop, assess and improve their teaching of mathematics. Whenever possible we encourage staff to attend mathematics courses; make provision for the mathematics subject leader to work alongside colleagues in the classroom or shared areas; provide school based INSET; involve staff with policy and decision making; provide the opportunity to learn from colleagues’ expertise; encourage parental involvement at home and in school based workshops with their children.

## 12 Pupils’ records of work

12.1 Children are taught a variety of methods for recording their work and they are encouraged and helped to use the most appropriate and convenient method of recording. Children are encouraged to use mental strategies before resorting to a written method. All children are encouraged to work tidily and neatly when recording their work. When using squares, one square should be used for each digit.

12.2 EYFS record informally within the setting. For example: on the playground, on whiteboards, physically ordering numbers.

12.3 Staff, especially in EYFS, sometimes use photos to ensure records of each child’s achievement.

## 13 Feedback to children

 All work is marked against success criteria, in line with the school marking policy, and includes next steps or a gap task. Children self-assess and peer-assess their work and given time to complete the gap task set.

**14 Reporting to parents and parental involvement**

 Reports are completed before the end of the summer term and parents are given opportunity to formally discuss their child’s progress at two parents’ evenings in the autumn and spring terms. Parents can make an informal appointment to discuss their child’s progress at any time over the school year. Parents are encouraged and offered support and guidance to support their children’s learning of mathematics.

**15 Home Learning**

 It is our school policy to provide parents and carers with opportunities to work with their children at home. These activities may only be brief, but are valuable in promoting children’s learning in mathematics. Activities are sent home to children in EYFS to Year 6 on a weekly basis as part of our home learning challenges. These can take the form of games, activities or investigative tasks.

**16 Learning Support Assistants (LSA)**

 16.1 Learning Support Assistants help teachers with the delivery of lessons by encouraging all children to participate as fully as possible. They enable the children to maintain their focus throughout the lesson, through questioning, recapping and re-invigorating their enthusiasm for learning tasks when necessary. They encourage thinking and independent learning as far as possible, using a range of models, images and apparatus and challenge children to ‘have a go’. They have a positive attitude to mathematics, looking to promote mathematical understanding in everyday events including the outside learning environments. They provide feedback to the teacher verbally and, on children’s work, show the support given and mark accordingly to marking policy (when trained to do so).

16.2 Strategies that LSA commonly use in class to support children are:

* ensuring that identified children understand the learning intention for each lesson;
* supporting identified children to engage with whole-class teaching and group work sessions;
* being a Talk Partner, enabling discussion of the problem/task and develop reasoning. In doing so, they encourage children to talk through using the language of mathematics;
* working with small groups across the ability range reinforcing the approach, methods and language used by the teacher;
* utilising a range of apparatus to support learning e.g. Numicon, multibase, bead strings, numberlines, 100-squares, multiplication squares, place value grids, mini-whiteboards;
* encouraging children’s “Can do” attitude, building their confidence as mathematicians;
* emphasising children’s use of the success criteria when completing and evaluating their work and when providing learning feedback to their peers;
* enabling children to assess their own understanding and reason their thinking by using the correct mathematical language

**17 Governors**

 The Mathematics Subject Leader to have regular meetings with the School Governing body to disseminate and discuss the teaching and learning of mathematics at London Meed.

**18 Budget**

The budget will be allocated in line with the School Improvement Plan.

### Signed: N Balan

### Date: January 2017

*Ratified by staff meeting: 1 February 2017*