

Shipbourne School Maths Policy



November 2023

INTRODUCTION

‘A high-quality mathematics education 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.’ (DfES 2014)

This policy outlines the teaching, organisation and management of the mathematics taught and learnt at Shipbourne Primary School, and has been drawn up as result of staff discussion and has full agreement of the Governing Body. The implementation of this policy is the responsibility of all the teaching staff.

Our Aims

Our aims for Maths at Shipbourne Primary School are based on the ‘The National Curriculum in England - Mathematics Programme of Study, KS1 and KS2 framework’ document, the Department for Education’s Mathematics Guidance for Key Stages 1 and 2 (June 2020) and the Mastery model which ensure that all pupils will:

- Become fluent in the fundamentals of mathematics, including 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 mathematics to a variety of problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions

Therefore, at Shipbourne Primary School we are committed to developing:

- A positive attitude and a ‘can do’ mind-set towards mathematics and an awareness of the fascination of mathematics
- Competence and confidence in mathematical knowledge, concepts and skills and resilience in the face of a mathematics challenge
- An ability to solve problems, to reason, to think logically and to work systematically and accurately
- Initiative and an ability to work both independently and in cooperation with others
- An ability to communicate mathematics through the development and use of precise and accurate language
- An ability to use and apply mathematics across the curriculum and in real life

TEACHING MATHEMATICS

Teachers begin planning with the National Curriculum (2014), forming a long-term plan which covers the required programmes of study. For each term, medium term plans are formulated, ensuring good coverage and progression through the year. Progression grids and Assessment for Learning (AFL) are used to facilitate weekly and daily planning, ensuring adequate differentiation for each child. The main resources used for the teaching of maths are NCETM, White Rose, with supporting resources from Target Maths and Numberblocks (EYFS) where appropriate. Homework booklets from CGP maths as well as online resources, Numbots and Times Tables Rockstars support home learning. Other relevant documentation including the school progression documents for calculations are also referred to. Post Covid-19, DfE Ready to Progress documents have also been used carefully to prioritise learning.

Teaching time

All pupils from year 1 to year 6 will have dedicated daily mathematics lessons of approximately 60 minutes. Children are encouraged to use and apply their Maths knowledge at every opportunity and, where appropriate, teachers plan opportunities for this in other areas of the curriculum.

Teachers of Reception children base their teaching on objectives from the Early Years Foundation Stage (EYFS), providing children with mathematical opportunities through self-initiated investigation in a stimulating learning environment. This ensures that they are working towards the 'Early Learning Goals for Mathematical Development'.

The NCETM identifies the six key areas of early mathematics learning as · Cardinality and Counting · Comparison · Composition · Pattern · Shape and Space · Measures.

EYFS Framework and Maths

- Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically.
- Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers.
- By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built.
- In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures.
- It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.

Class Organisation

Children are taught Maths in their class, predominantly in year groups to enable focused teaching. Ability groupings will sometimes be used within the class structure, where this facilitates better provision for learning. Whole class teaching using the Mastery approach – pre-teaching, interventions and adapting the learning ensures all pupils make progress.

Daily Mathematics Lesson

All lessons have a clear learning objective (LO), and success criteria are shared with the children in each lesson. Teachers have high expectations and believe Maths is achievable by all.

Each lesson will consist of:

- Teaching Input – this is oral and interactive and will involve whole class teaching (see Maths Teaching for Mastery below).
- Appropriate practical resources, models and images will be used to support children in developing their conceptual and procedural fluency and mathematical understanding
- Carefully scaffolded learning so everyone can make progress. Lessons are designed with careful small steps, questions and tasks in place to ensure the learning is not superficial and the ability to build on something that has already been sufficiently mastered (pupils' learning of concepts is seen as a continuum across the school)
- Opportunities for pupils to make connections and spot patterns between different concepts (e.g. the link between multiplication, division and fractions)
- The use of precise mathematical language (STEM sentences) and effective questioning
The application of Rosenshine's ten key principles: *Daily review (Retrieval), Present new material using small steps, Ask questions, Provide models, Guide Student practice, Check for student understanding, Obtain a high success rate.*
- Challenge through greater depth - rather than accelerated content, (moving onto next year's concepts) teachers set tasks to deepen knowledge and improve reasoning skills within the objectives of their year group

The Essence of Maths Teaching for Mastery

At Shipbourne Primary School, Maths teaching and learning are underpinned by the principles of the Maths Teaching for Mastery approach:

- Maths teaching for mastery rejects the idea that a large proportion of people 'just can't do Maths'
- All pupils are encouraged by the belief that by working hard at Maths they can succeed
- Pupils are taught through whole-class/year group interactive teaching, where the focus is on pupils working together on the same lesson content at the same time

where appropriate. At Shipbourne, we adapt the mastery approach to account for our mixed year group classes and individual needs.

- If a pupil fails to grasp a concept or procedure, this is identified quickly and early intervention ensures the pupil is ready to move forward with the whole class in the next lesson.
- Lesson design identifies the new mathematics that is to be taught, the key points, the difficult points and a carefully sequenced journey through the learning. In a typical lesson, pupils sit facing the teacher and the teacher leads back and forth interaction, including questioning, short tasks, explanation, demonstration, and discussion.
- Procedural fluency and conceptual understanding are developed in tandem because each supports the development of the other.
- It is recognised that practice is a vital part of learning, but the practice used is intelligent practice that both reinforces pupils' procedural fluency and develops their conceptual understanding.
- Significant time is spent developing deep knowledge of the key ideas that are needed to underpin future learning. The structure and connections within the mathematics are emphasised, so that pupils develop deep learning that can be sustained.
- Key facts such as multiplication tables and addition facts within 10 are learnt to automaticity to avoid cognitive overload in the working memory and enable pupils to focus on new concepts.

Links between mathematics and other subjects

Mathematical contributions are made in many subjects within the primary curriculum and opportunities will be sought to draw mathematical experience out of a wide range of activities. This will allow children to begin to use and apply mathematics in real contexts. Our school is keen for children to use mathematics skills in a range of situations including Science, ICT, PE, and topic-based learning

SCHOOL AND CLASS ORGANISATION

Adaptation

Teachers use progression documents, tracking grids and assessment for learning, along with the school calculation policies and other relevant documentation, to plan learning opportunities that are matched closely to individual pupils' needs, in order for all groups of children to make progress (girls, boys, EAL, more able, Gifted and talented, vulnerable groups, LAC, those with specific learning needs and children with Statements). Teaching Assistants (TAs) are used to support all children in the classroom and teachers carefully plan to use TAs effectively in order to help children make progress.

Equal Opportunities

All groups of children have equal access to the Maths curriculum in line with our Equality, Diversity and Inclusion Policy. Teaching materials are chosen to reflect the cultural and ethnic diversity of our society and we try to avoid stereotyping by gender or race. Care is taken to ensure that teaching does not disadvantage any gender, cultural or ability group. Class teachers, along with the SLT, monitor pupils' progress termly to ensure that no group is disadvantaged and that appropriate actions are put into place.

Pupils' records of their work

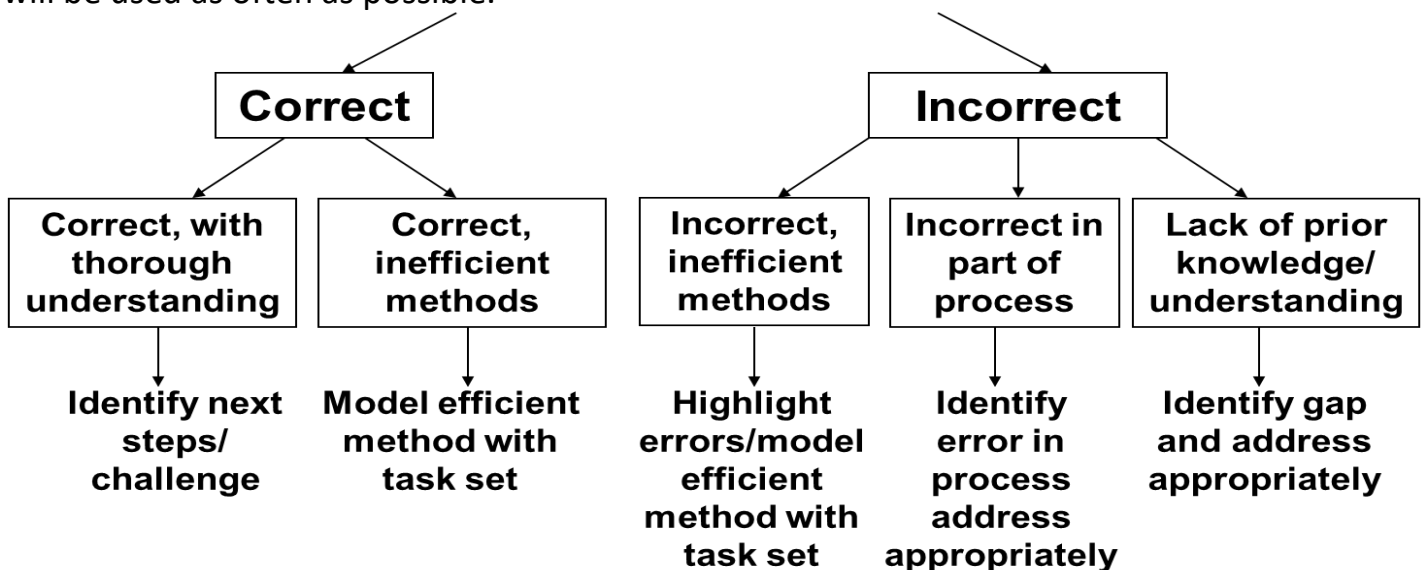
There are occasions when it is not necessary to record mathematics in a permanent form, but there are also occasions when the children need to carry out written calculations. It is also important to record aspects of mathematical investigations. Children are taught a variety of methods for recording their work and they are encouraged and helped to use the most appropriate and convenient method of recording. They will always record the date and place the Learning Objective (LO) and Success Criteria at the start of their work.

Before carrying out a calculation, children are encouraged to consider:

- Can I do it in my head?
- The size of an approximate answer
- Could I use jottings to keep track of the calculation?
- Do I need to use an expanded or compact written method?
- All children are encouraged to work tidily and neatly when recording their actual answers but jottings may take any form and are important evidence for the teacher.

Marking

All work will be marked to acknowledge its completion. At times, children may mark their own work with the teacher's input. This enables immediate feedback and correction to move learning forward. Developmental marking, in line with the school's marking policy, will be used as often as possible.



Homework

Maths homework will be set in line with the school homework policy. Times table practice will be expected every week. Children will be regularly tested and supported in the learning of their times tables.

Information and communication Technology

ICT will be used in various ways to support teaching and motivate children's learning. ICT will involve the computer, calculator, and audio-visual aids. Year 3-6 regularly use Showbie to access and complete their Maths learning. This also helps to reduce worksheet overload in Maths books. Such platforms are used in the daily mathematics lesson when it is the most efficient and effective way of meeting the lesson objective. The school subscribes to Numbots and Times Tables Rockstars and tasks will be set regularly to aid learning in class and at home.

It is an important skill to develop the efficient and appropriate use of a calculator. Children are taught how to use a calculator efficiently.

Assessment

Assessment is used to inform teaching in a continuous cycle of planning, teaching and assessment.

Assessment is a part of every lesson and will take place through open questioning, observation and marking. In addition to this, children are encouraged to self-assess against the success criteria for the lesson. Planning and lessons will be adapted in response to the needs of pupils'.

Throughout the year, and in line with the school assessment cycle, teachers will work together to moderate children's levels using data tracking grids to ensure consistency of judgment and evidence.

NFER testing and school-designed tracking spreadsheets are used to record children's attainment and monitor progress and Pupil Progress Meetings take place termly. There will be assessment weeks in each Termly block (Autumn, Spring) with the optional SATs taken yearly by all KS1 pupils in Summer term. Year 6 pupils will take end of Key Stage 2 SATs in Summer.

MANAGEMENT OF MATHEMATICS

Role of the subject leader

- Disseminate good practice
- Lead and organise staff development
- Ensure teachers are familiar with the calculation policies and other relevant documents to support the teaching of mathematics
- Ensure continuity and progression through monitoring of planning, books, lessons
- Conduct learning walks and observations of Maths teaching, identifying areas where further support is needed

- Work alongside colleagues and teach demonstration lessons to support improvement
- Support the development of record keeping, assessment and target setting systems in mathematics
- Monitor, order and organise Maths resources
- Keep up to date with developments in Maths
- Work cooperatively with the Headteacher, SENCO and SLT, informing them of progress towards targets and issues affecting mathematics within the school
- Work collaboratively with our partnership's Maths lead (Hadlow)

Role of the Governor Monitoring Pair:

- To visit the school regularly to talk with the teachers and when possible, observe some of the daily Maths lessons;
- To report back to the Governing Body on a regular basis;
- To attend any relevant inset or training.

Role of the Headteacher:

- Liaise with subject leaders to lead, manage and monitor the National Curriculum, including monitoring teaching plans and the quality of teaching in the classrooms;
- With the Governor Monitoring Pair, keep the governing body informed about standards;
- Ensure that Maths remains at a high profile in the school's development work.

For further guidance, please refer to National Curriculum 2014-Maths, Mathematics Guidance: Key Stage 1 and 2 June 2020, Teaching for Mastery NCETM, OFSTED Research review series: mathematics