

THOMAS HARDING JUNIOR SCHOOL **MATHEMATICS POLICY**

Rationale

This policy outlines the purpose, nature and management of the mathematics taught and learnt in the school. The implementation of this policy is the responsibility of all teaching and support staff and should be overseen and monitored by the subject leader and the Senior Leadership Team (SLT).

Subject Definition:

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.

Aims:

Our aims in teaching mathematics are that all children will:

- become numerate and tackle mathematical problems with confidence
- develop the skills which are needed to meet the demands of adult life
- be able to use and apply the skills in a range of contexts
- reason and problem solve, drawing upon proficient strategies
- develop the ability to think logically and clearly
- use mathematical language effectively and confidently
- develop positive attitudes to mathematics, recognising that mathematics can be both useful and enjoyable
- use effective and efficient mental maths skills

The Mathematics Curriculum:

The programmes of study from *The National Curriculum in England Framework* set out what pupils should be taught. By the end of Key Stage 2, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Mathematical content is divided into the following areas:

- Number
 - Number and place value
 - Addition and subtraction
 - Multiplication and division
 - Fractions (including decimals and percentages)
- Measurement
- Geometry
 - Properties of shape

- Position and direction
- Statistics
- Ratio and proportion
- Algebra

The school has developed its own yearly 'overviews', based on the White Rose Materials, and uses the White Rose Scheme, alongside NCETM Mastery documents, to plan relevant learning opportunities. By using the White Rose materials as a foundation, our Maths curriculum enables pupils to spend a greater amount of time building number competency so that skills and knowledge are embedded in pupils' long-term memory. Our Maths curriculum ensures there is clear progression in the acquisition of fundamental skills such as fluency, reasoning and problem solving.

Teachers are expected to plan sequences of learning, using the school's planning pro-forma. This should include: number based oral and mental work (including counting), fluency work, modelling of concepts, application and a plenary. Planning should be made available to the Senior Leadership Team and it is expected that planning is given to all members of staff within the year group, including support staff.

Concrete, Pictorial, Abstract (CPA):

Based on academic research, CPA is a highly effective approach to teaching that develops a deep and sustainable understanding of maths in pupils. Children can find maths difficult because it is abstract so the CPA approach builds on children's existing knowledge by introducing abstract concepts in a concrete and tangible way. It involves moving from concrete materials, to pictorial representations to abstract symbols and problems.

- Concrete – children at Thomas Harding have the opportunity to use concrete objects and manipulatives to help them understand what they are doing.
- Pictorial – children then build on this concrete approach by using pictorial representations. These representations can then be used to reason and solve problems (including bar modelling)
- Abstract – with the foundations laid, children are able to move to an abstract approach using numbers and key concepts with confidence.

Bar Modelling:

At Thomas Harding, we recognise that children need a strategy to help them unpick the vocabulary and 'visualise' the maths. This is because when solving problems, it is often not the calculation that children can't do – rather they are not sure which calculation they need to do. Teachers and support staff use bar models, pictorial representations of problems or concepts, which can be used for any of the operations: addition, subtraction, multiplication and division. In word problems, bar models hold the huge benefit of helping children decide which operations to use or visualise problems.

Problem solving strategies:

Problem solving is at the heart of mathematics. Where children may find reasoning and solving problems challenging, a range of strategies to support children in understanding how to apply skills and concepts are displayed in every classroom.

Please refer to the Thomas Harding Junior School 'Calculations Policies' for guidance on methods that are taught throughout the school.

Times Tables:

We recognise that the ability to confidently and fluently recall multiplication facts is a core mathematical skill. As well as learning multiplication and division facts in their lessons, children will take part in 'Terrific Times Tables' activities twice a week to help aid their response time and fluency. Children have access to 'Times Table Rockstars', which supplements their times tables knowledge both at school and at home.

Self-regulation:

A programme of self-regulation ensures that there are non-negotiables in learning that are built into the maths curriculum. This ensures that our curriculum maximises opportunities for pupils to take greater responsibility for their own learning as well as ensuring basic expectations are retained in long-term memory.

Environment:

Every classroom has a set of basic, everyday maths resources that are available to all pupils. A number line, place value chart and key vocabulary should be displayed in every classroom. The school provides a mathematically stimulating environment:

- through displays that promote mathematical thinking and discussion
- through displays of pupils' work that celebrate achievement
- by providing a good range of resources for teacher and pupil use.
- by providing rich language and topic related vocabulary
- by promoting high quality talk, utilising "I say, we say, you say..."

Monitoring and Evaluation:

Monitoring and evaluation will be carried out by:

- The Headteacher
- The mathematics subject leader
- Members of the Senior Leadership Team
- The Local Governing Body

Monitoring exercises include:

- scrutiny of medium and short-term planning and feedback
- classroom observation, learning walks and drop ins with feedback
- reviewing children's work, book scrutiny and work sampling

- pupil and staff interview
- analysis of test data and papers
- monitoring of assessment
- work moderation
- the mathematics subject leader will make an annual report to the governors
- INSET, staff training and CPD
- monitoring of the impact of interventions

Outdoor learning:

A challenging and stimulating curriculum encourages our children to learn and think independently and ours is designed to enable each child to reach their full potential. Maths learning is fun and meaningful and by learning outdoors, in our extensive school grounds and the local area, it broadens and deepens our children's experiences further.

Special Educational Needs:

- All pupils take part in mathematics lessons
- Teachers plan lessons so that all pupils can be included and can make progress in the lesson.
- In oral work, teachers plan a range of differentiated questions, with some targeted at specific pupils.
- Teachers also ask open questions that allow all children to take part.
- Teachers use a wide range of visual resources to illuminate meaning.
- During whole class teaching, discreet help is given to particular children by teaching assistants where available.
- During activities, children may be supported by the class teacher and LSAs where available.

Intervention:

It may be necessary for some children to take part in intervention sessions outside the normal mathematics lesson. These are mainly operated by teachers and LSAs in accordance with the mathematics subject leader and Inclusion Manager. The impact of the intervention is measured by class teachers and monitored by SLT, including through pupil progress meetings.

Marking:

Maths work should be marked using assessment for learning marking set out in the Maths Marking Policy and Guidance.

Homework:

We recognise the importance of making links between home and school and encourage parental involvement with the learning of mathematics. We set homework regularly using the *MyMaths* program, an online system that all pupils have access to.

Maths workshops are held when appropriate and guidance documents on how to support children with their calculation are given to parents.

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.

Assessment:

Assessment is carried out:

- orally through questioning
- by observation of children at work
- by marking and feedback of children's work (both written and verbal)
- through planned assessment activities linked to 'using and applying'
- by formal testing
- by informal assessment takes place continuously and teachers annotating weekly plans
- moderation and work sampling takes regularly
- Regular recording on our assessment tracker.

Target setting:

Children have targets based on number and calculation for their end of year expectations. These are shared regularly with the children.

Reporting Procedures:

Annual reports to parents should include comments on:

- pupil progress
- pupil effort and attitude
- areas of strengths and future development
- targets and next steps

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Next Review: September 2026