

**Hetton Lyons Primary School**

**Mathematics Policy 2022-2023**

**Intent**

* To 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.
* To **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
* To **solve problems** by applying their mathematics 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.

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects. (*National Curriculum 2014*)

**Our Mathematics Principles**

Our school’s mathematics principles are based on consultation with staff and children. They are our vision for mathematics. These principles are displayed when we are studying mathematics.

Good mathematics is:

* A positive attitude towards mathematics and awareness on the relevance of mathematics in the real world, making connections where appropriate.
* Competence and confidence in mathematics knowledge, concepts and skills.
* Fluent knowledge and recall of number facts and the number system.
* An ability to solve problems, to reason, to think logically and to work systematically and accurately.
* Independent and collaborative learning where children can become ‘mini teachers’.
* An ability to communicate mathematically and use a wide range of vocabulary.
* An ability to use and apply mathematics across the curriculum and in real life situations.
* Fluency in performing written and mental calculations.
* A commitment and passion to learn about mathematics.

**Implementation**

Early Years Foundation Stage Organisation

In EYFS, mathematical skills are taught daily through a range of adult directed tasks and independent play opportunities. Activities are planned and resourced in accordance with Early Years Foundation Stage Profile and linked to Early Learning Goals, current themes or individual interests. Children are assessed mainly through observation of their application of skills.

KS1 and KS2 Organisation

As a school, we follow the National Curriculum supplemented by a range of resources which reflect the CPA approach. Problem solving is embedded throughout our curriculum and opportunities to deepen the children’s reasoning and problem-solving skills are utilised.

Children in these year groups are taught mathematics in mixed ability classes. Each lesson gives children the opportunity to practise and revisit previous learning to embed prior knowledge. Each lesson follows the structure:

* Daily Maths
* Explore
* Guided Practise
* Independent Challenge
* Fluency
* Problem Solving
* Reasoning

For those children who need it, pre-teaching is carried out before the mathematics lesson. Intervention is carried out within the lesson (immediate intervention) and at other planned times.

Year 6 Organisation

Year 6 are set in three ability groups. At the beginning of each lesson, all children undertake an oral and mental starter or arithmetic style activity. Immediate mathematics intervention is carried out within the lesson as well as outside of the lesson so misconceptions can be addressed.

**The Importance of Mathematics in the Curriculum**

Mathematics is a creative and highly interconnected 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.

**Expectations**

By the end of Early Years Foundation Stage, the performance of most pupils should be working within the Early Learning Goals.

By the end of KS1, the performance of most pupils should be Year 2 Expected level.

By the end of KS2, the performance of most pupils should be Year 6 Expected level.

**What do we aim to do?**

Through the mathematics curriculum, we aim to encourage children to become independent mathematicians by providing a balanced and varied programme of study. We aim to:

* Give the children the opportunity to learn through first hand experiences as well as playing with and exploring new materials and equipment.
* Teach mathematics through a variety of individual, group and whole class teaching, providing equal learning opportunities for all children.
* To provide children with opportunities to engage in rich and meaningful reasoning activities.
* To provide children with opportunities to explore problems in a variety of contexts.

**How will we fulfil our aims?**

1. Curriculum Provision

Planning is undertaken at three levels:

**Long term** planning is based on the programmes of study in the National Curriculum and mastery overviews. Inspire Maths and White Rose Maths Hub are accessed and adapted to provide a curriculum plan that will support ‘Teaching for Mastery’.

**Medium term planning** is a termly plan, based on the National Curriculum. It is split into twelve weeks. As part of each overview, a significant amount of time is devoted to developing key number concepts each year. This ensures pupils build their fluency as number sense will affect their success in other areas of mathematics. Pupils who are successful with number are much more confident mathematicians.

**Short term** planning is in the form of weekly flipcharts which are adapted and differentiated as necessary. A post assessment is carried out at the end of each unit of work to gauge pupils’ understanding and to assess progress.

2. Teaching and Learning

We have a policy for progression in calculation to ensure continuity and consistency throughout the school (*see calculation policy*).

3. The Learning Environment

Every classroom has a ‘Maths Working Wall’. This display includes key vocabulary for the current unit of learning being taught. It also reflects the CPA approach by giving the children examples of calculation methods. In KS2, times tables are displayed in every classroom and are referred to daily.

Classrooms may also have another display which portrays the learning of a unit of work, which showcases children’s work.

4. Inclusion and Equal Opportunities

This is incorporated into all mathematics lessons and is carried out in a variety of ways. All children, including lower and higher achieving, will benefit from:

* setting appropriately challenging tasks based on systematic, accurate assessment of pupils’ prior skills, knowledge and understanding.
* timely support and intervention; systematically and effectively checking pupils’ understanding throughout lessons.
* ensuring that marking and constructive feedback is frequent and of a consistently high quality enabling pupils to understand how to improve their work; children must be given time to respond to feedback and corrections.
* open ended activities/investigations where differentiation is by outcome.
* providing a variety of resources for example base ten, numicon, multilink, cuisenaire rods, counters, 100 squares, number lines.
* support from teacher or TA in class, annotated on planning or post it notes.
* setting appropriate and regular homework.
* intervention delivered by teachers and HLTAs.

5. Assessment

In mathematics, children are assessed at the end of each unit. From this, the children are given a target which is used within intervention lessons.

In addition to this, pupil progress and achievement is recorded and tracked using SIMS across the year but data captures happen termly and this data is discussed at pupil progress meetings.

Formal Assessments

Year 2 and Year 6 complete the national SATs for mathematics in the summer term, however all year groups assess pupils using published end of year assessments from the White Rose Hub.

Marking

Marking of children’s work is essential to ensure pupils make further progress. We believe that the most beneficial marking in mathematics is done at the point of learning. Our aim is that all children should leave a mathematics lesson knowing how well they have done and if intervention is needed. Therefore, most marking will be completed within the lesson either by the children self-marking or marked by a teacher or TA. After each lesson, both the children and teacher will assess the children’s understanding through a traffic light system.

We follow specific marking codes:

**E** - Equipment

**G** - Guided

**I** - Intervention

**S** - Supported

**II** – Immediate Intervention

6. Resources

Each classroom has their own set of resources which supports the progression of the written methods set out in our calculation policy. Resources are reviewed each year to ensure they are suitable and that they continue to reflect the learning carried out in that year group. These resources are paramount in supporting the CPA approach and they are displayed in classrooms to enable children to access them independently.

Children of all ability groups are encouraged to use resources to support their learning.

7. Cross Curricular Links

Mathematics is taught mainly as a separate subject but every effort is made to link mathematics with other areas of the curriculum such as Science, Geography and History. We try to identify the mathematical possibilities across the curriculum at the planning stage. We also draw children’s attention to the links between mathematics and other curricular work so children see that mathematics is not an isolated subject.

In the Early Years, these links are more evident because of the less formal timetable.

8. Trips and Visitors

The school recognises the importance of curriculum enrichment which can be provided by visitors to the school (e.g. Explore Learning) as well as trips outside the school.

9. How is Mathematics Monitored and Evaluated?

The teaching and learning of mathematics is monitored through:

* lesson observations (formal and informal)
* work scrutiny
* scrutiny of planning
* tracking and monitoring of pupil progress
* voice of the pupil
* learning walks
* informal ‘drop ins’

10. Parents and Carers

The school aims to involve parents and carers in their children’s learning as much as possible and to inform them regularly of their child’s progress in mathematics. Parents and carers have the opportunity to meet with the child’s class teacher at least twice a year at parent’s meetings and receive a written report at the end of the year. Parents and carers are encouraged to speak to their child’s class teacher at any point during the year, either informally or by making a specific appointment to discuss anything to further support them at home. Information about the child’s progress and achievements is shared with parents and carers at this time and also ways in which parents and carers can assist with their child’s learning. Parents and carers are encouraged to support their children with their homework.

EYFS have a mathematics parents meeting during autumn term in which parents are invited into school to learn about how we teach mathematics and to take part in mathematical activities with their children. The Year 6 teachers annually hold a SATs Parents’ Evening to inform and discuss the SATs tests in mathematics.

11. Homework

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 invaluable in promoting children’s learning in mathematics. Mathematics activities are sent home on a weekly basis and take the form of number and basic skills practise. In some cases, mathematics homework is given online through My Maths, Times Table Rockstar and Numbots.

12. Website

The mathematics page of the school website provides a range of supporting and informative materials for parents and children such as:

* links to mathematical websites
* links to MyMaths, Times Table Rockstar and Numbots
* link to mathletics login for Years 4 and 6
* the school mathematics and calculation policies
* multiplication table practise songs
* multiplication table worksheets
* mathematics glossary and marking code

13. Staff Continued Professional Development

The subject leaders attend a wide variety of CPD and subject leader’ meetings and disseminate information and provide training to staff at planned staff meetings. Through performance management, staff also have the opportunity to identify areas of need and appropriate training is arranged. Hetton Lyons also has a rolling programme for staff to attend Inspire Maths training.

**Impact**

The successful approach at Hetton Lyons results in a fun, engaging, high-quality mathematics education, that provides children with the foundations for the fundamentals of mathematics.

The whole school approach also ensures:

* Children achieve their end of year and key stage expectations.
* Children have gained relevant key facts and knowledge specific to the primary mathematics curriculum.
* Children can reason and problem solve with confidence.
* Children will be able to explain the processes they have taken and will be able to reason mathematically drawing on their prior knowledge and skills.
* Children will be able to put their mathematics into a real life context and know the value of it.
* Children will be able to learn about possible careers in mathematics.
* Children share their voice often and it is used to develop the mathematics curriculum further.

**Policy Review**

This policy will be reviewed by the governing body as part of its regular review of policies or when there is a change in assessment or curriculum.

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Date presented to the Governing Body: March 2020 Date of next review: March 2023