

Horton Park Primary School



Horton Park Primary

We Learn to Succeed

Mathematics Policy

Mathematics Policy

Mission Statement: We learn to succeed

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.

(National Curriculum 2014)

Intent:

The intent of the Mathematics curriculum is to ensure it is accessible to all pupils and will maximise the development of every child's ability and academic achievement. This includes developing Competence and confidence in mathematical knowledge, concepts and skills through creative and engaging quality education.

The pupils are encouraged to make rich connections across mathematical ideas to develop fluency, reasoning and to solve problems logically and to work systematically and accurately. The mathematical language is developed through the curriculum to support pupils in communicating mathematically.

We intend for our pupils to be able to apply their mathematical knowledge across the curriculum and in real life.

As our pupils progress, they develop A positive attitude towards mathematics and an awareness of the relevance of mathematics in the real world. They have a clear understanding of mathematics through a process of enquiry, experiment and investigation working both independently and cooperation with others.

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.
- Can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down.

Why do we think Mathematics is important?

The teaching of Maths is based on the National Curriculum and is supported by our Long term plans which include mental maths skills and through the calculation policy. We provide children with the ability to reason in a logical way and to apply mathematics through problem solving in order to deepen their understanding.

The mathematics curriculum promotes the British values of tolerance and resilience on a daily basis through problem solving and understanding of complex concepts, encouraging students to persevere and try different methods to arrive at a correct

solution. Children are encouraged to build on and learn from their mistakes in maths lessons.

Values such as respect, tolerance of other opinions and positive criticism are embedded in Maths. An underpinning drive to develop students who are resilient, determined and respectful creates a positive set of values to apply to all areas of life and help develop children's character.

Breadth of study

Through careful planning and preparation we aim to ensure that throughout the school children are given opportunities for:

- Practical activities and mathematical games
- Problem solving
- Noticing and wondering
- Individual, group and whole class discussions and activities
- Open and closed tasks
- A range of methods of calculating eg. Mental and formal written methods
- Working with computers as a mathematical tool using a range of programmes

Through our creative curriculum approach we also seek to explore and utilise further opportunities to use and apply mathematics across all subject areas (Maths Across the Curriculum)

In the Early Years we follow the EY curriculum, encouraging all children to be active learners. Children are encouraged through play and exploration to develop the skills that form a strong foundation for their future learning. This is supported with the provision of a range of real life experiences through educational visits and visitors in school. Focused activities, along with carefully planned and resourced continuous provision, provide our youngest children with a range of experiences.

Teachers planning and organisation

Each class teacher is responsible for the mathematics in their class / year group in consultation with and with guidance from the mathematics subject leader. All planning follows the 5 Phase structure of fluency, reasoning and problem solving from Year 1 – Year 6.

The approach to the teaching of mathematics within the school is based on three key principles:

- A mathematics lesson every day
- A clear focus on direct, instructional teaching and interactive oral work with the whole class and targeted groups
- An emphasis on embedding and building on basic skills

Each class organises a daily lesson 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.

Long Term Planning

All long term plans from Year 1– Year 6 ensure the main domains are covered up to three times a year. This includes consolidating and building on learning as the year develops. The main domains are:

- Place Value
- Addition and subtraction
- Multiplication and division
- Fractions (decimals and percentages)
- Geometry

Each term, the context of the learning is also developed and includes measure, money and statistics.

EYFS long term plans ensure the main concepts are covered and revisited over the year. These include:

- Numbers ordering and comparing
- Putting amounts into unequal groups and combining unequal groups
- Putting amounts into equal groups and combining equal groups
- Sharing items out equally

MEDIUM TERM AND SHORT TERM PLANNING

Lessons are planned using the 5 Phase Planning format under three main strands:

- Fluency
- Reasoning
- Problem Solving

Mathematics is planned as a unit of work and is collected and monitored by the mathematics subject leaders weekly.

EYFS planning is based on the medium term plans and delivered as appropriate to individual children with thought to where the children are now and what steps they need to take next.

Inclusion

The daily mathematics lessons are inclusive to pupils with special educational needs. Where required, children's Personalised Provision Plans will address targets. These targets may be worked upon within the lesson as well as on a 1:1 basis outside the Mathematics lesson.

Maths focused intervention programmes such as the 20:20 Maths programme, are available in school to help children with gaps in their learning and mathematical understanding. These are delivered on a 1:1 basis by trained support staff and overseen by the class teacher. Before and after school boosters are also taking place with identified targeted children throughout the year.

Within the daily mathematics lesson teachers must not only provide differentiated activities to support children with special educational needs but also activities that provide appropriate challenges for children who are more able/exceptionally able in mathematics. It is vital that all children are challenged at a level appropriate to their ability. This is through the use of:

- Rich questioning
- Higher order and abstract thinking (e.g. handling ambiguity and paradox)
- Problem solving and enquiry
- Development of advanced language skills, to include accuracy, precision and fluency
- Independent work and self-study
- Development of metacognition
- Transfer of knowledge across disciplines
- Provision of leadership opportunities
- Curriculum enrichment

Greater Depth / More Able

More able pupils are those who are achieving or have the potential to achieve the higher standards in any academic subject including the arts, sports and drama by the end of each Key Stage. This may include those children who, for whatever reasons, may be currently underachieving. At Horton Park we define the higher standards as those set by the Department for Education in collaboration with the Standards and Testing Agency.

Mastery of the curriculum requires that all pupils:

- use mathematical concepts, facts and procedures appropriately, flexibly and fluently;
- recall key number facts with speed and accuracy and use them to calculate and work out unknown facts;
- have sufficient depth of knowledge and understanding to reason and explain mathematical concepts and procedures and use them to solve a variety of problems.

Developing mastery with greater depth is characterised by pupils' ability to:

- solve problems of greater complexity (i.e. where the approach is not immediately obvious), demonstrating creativity and imagination;
- independently explore and investigate mathematical contexts and structures, communicate results clearly and systematically explain and generalise the mathematics

Equal opportunities

We incorporate mathematics into a wide range of cross-curricular subjects and seek to take advantage of multi-cultural aspects of mathematics. We ensure that all children are able to fulfil their potential regardless of race, religion, disability or gender.

Pupils' records of work

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.

EYFS record at least one session a week in their books. Staff in EYFS use photos to ensure records of each child's achievements are maintained

There are also opportunities to record informally within the setting. For example:

- On the playground
- In the sand and water areas

- On whiteboards
- Using jigsaws
- Physically ordering numbers
- Playing games
- Using IT

Marking

Giving pupils feedback on their learning is essential to ensure they make further progress. Feedback includes oral and/or written support to consolidate or challenge learning further. All work is marked against success criteria, in line with the school feedback policy, and includes 'NOW' steps. All work is to be marked before a child starts the next piece of work in accordance with the school policy. Children are encouraged to self-evaluate their work and given time to respond to the 'NOW' steps. Children in KS2 are encouraged to self-evaluate their work after every lesson by either completing a Top Tip, Peer evaluation, Self-evaluation or a Grappling evaluation.

Pupil Achievement and Feedback

Teachers make regular assessments of each child's progress and record these systematically. A record of each child's attainment against the key objectives for the appropriate year group is recorded on classroom monitor. At the back of the books children will have targets set for each half term.

Short term

Children's class work is assessed frequently through:

- Regular marking
- Analysing errors
- Questioning
- Discussion

This is used to inform future planning and teaching. Lessons are adapted readily and short term planning is evaluated and annotated in light of these assessments. The teachers update their findings regularly using Classroom Monitor and this will be used to monitor progress during regular pupil progress meetings.

Long term

Y2 and Y6 to complete SATs assessments every May. Y3, 4 and 5 to complete optional SATs papers during summer term.

Year 4 to complete the Statutory Multiplication Check every June.

Reporting to Parents

The annual report to parents will include information re: progress and attainment and future targets in the subject.

Monitoring and Evaluation

Monitoring will be carried out by the maths subject leader as follows:

1. **Auditing Planning:** Access to all planning, relating planning to the National Curriculum and evaluating appropriateness. Also through formal and informal classroom observations when prioritised on the School Improvement plan.
2. **Monitoring of work:** Analysis of pupil's work in work scrutiny and discussions with pupils and class teachers.

3. **Monitor the Quality of teaching:** Analysis of planning related to the Framework and classroom observations re. Effectiveness of planning in practice.
4. **Auditing Resources:** Annual risk assessment and ongoing evaluation of resources. Monitor use of resources.

The subject leader will:

- Lead by example showing a thorough understanding of the subject
- Offer support to teachers in assessment, planning, teaching and delivery and the progression of skills
- Work alongside the 'Maths team' to monitor and evaluate teaching and progress
- Identify training and development needs, plan and deliver training.
- Resource Mathematics throughout school, prioritising spending in consultation with staff and in accordance with the subject action plan and SIP

Children will be encouraged to:

- Enjoy mathematics and see its relevance for life.
- Understand what their next steps are and be able to evaluate their progress towards them.
- Develop mental calculation strategies so that their first reaction to a question is: 'Can I do that in my head?'
- Use mathematical vocabulary with confidence.
- Use their knowledge to solve problems, see patterns, make predictions, present information clearly and interpret data
- Provide clear explanations of their methods.

Parents will:

- Be encouraged to develop positive attitudes to mathematics and actively support their children when homework is given
- Be well informed of their children's progress through annual reports and parents meetings.

Review Process

Headteacher reports outcomes of monitoring and evaluations to the Governing body half termly. Headteacher, Deputy Head / Mathematics subject leader monitor delivery in practice and related planning; feeding back outcomes and development points to staff as appropriate.

See Calculation policy