

Mathematics Policy

Date Ratified by Governing Body: 10th April 2019

Signed (Head Teacher):

Signed (Chair of Governors):

Introduction

The following policy reflects our values and ethos in relation to the provision and teaching of mathematics at Hallbrook Primary School to produce children with mathematical fluency, reasoning and problem solving. The school's policy for mathematics is based on the New National Curriculum 2014. The implementation of this policy is the responsibility of all the teaching staff.

Purpose

- ◆ To establish an entitlement for all pupils;
- ◆ To establish expectations for teachers and pupils;
- ◆ To promote continuity and coherence across the school;
- ◆ To promote a shared understanding of Mathematics, within the community.

Overview

This policy consists of key paragraphs that explain how Mathematics is taught.

- ◆ Aims of the policy
- ◆ Expectations
- ◆ Teaching and learning/Planning
- ◆ Inclusion
- ◆ Parental/community involvement
- ◆ Assessment, recording and reporting
- ◆ Staff development
- ◆ Curriculum leadership
- ◆ Monitoring and evaluation
- ◆ Times tables – see separate policy.
- ◆ Calculations – see separate policy.

Aims of Policy

To encourage children 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.
- ◆ **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 routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.
- ◆ Demonstrate an enjoyment and love of maths.
- ◆ Be confident in the fundamentals of maths, including the four operations and times tables.
- ◆ Embed concrete, pictorial and abstract methods throughout the maths curriculum and across the year groups.
- ◆ Understand the importance of mathematical skills in everyday life.
- ◆ Produce effective, well presented written work.

Expectations

Key Stage One

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence in problem solving and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations with concrete, pictorial and abstract methods.

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency. Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Lower Key Stage 2

The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately when reasoning and solving problems. This will include methods such as concrete, pictorial and abstract.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work for the new Multiplication Times Table check from 2020.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Upper Key Stage 2

The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. Use of concrete, pictorial and abstract methods should be used.

By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages as well as being able to reason and solve problems.

Pupils should read, spell and pronounce mathematical vocabulary correctly.

Teaching and Learning/Planning

In the Early Years Foundation Stage, mathematics is underpinned by Early Years outcomes. In the EYFS mathematics forms a fundamental part of the day, child initiated learning opportunities are cross-curricular and children experience a wide range of open-ended problems and resources, both indoors and out. In the EYFS mathematics is also taught as a discrete subject through child-led themes and 'Early Number Sense' is to be taught throughout.

From Year 1, mathematics continues to be taught as a discrete subject. Mental mathematics sessions are an integral part of every mathematics lesson. Mathematical knowledge is applied and skills reinforced whenever relevant in other curriculum areas providing the children with opportunities for cross-curricular learning. ICT is used where it enhances, extends and complements mathematics teaching and learning. Daily mathematics sessions should last between 50-60 minutes with daily maths skills to support gaps and to be used as pre teach and post teach sessions.

Teachers use the New National Curriculum 2014 programme of study for medium term mathematics plans. These are used as a basis for short term planning and adapted according to the needs of the children. Different schemes of work are also used to support the teaching of the maths curriculum. The length of a unit may vary depending on the needs of the individual classes. The school has agreed proformas which all teachers use.

Clear objectives are set for each session and are shared with pupils. Whole class teaching is used in each class and 'Strengthening' activities are used to support children who need extra scaffolding. 'Dive Deeper' activities are used across all year groups for children to further deepen their learning.

Additional adults are used to support the teaching of Mathematics. They work under the guidance of the teacher, with small groups of children or individuals with a 'same-day' intervention.

Inclusion

In accordance to the new mastery teaching, it is portrayed that 'Every Child Can' which gives every child the opportunity to access the same work as their peers. Extra scaffolding and resources are used through teacher support or concrete materials. Teaching staff will also implement the use of 'Strengthening' activities to help support children with the learning objective.

Same-day intervention is used within classes to help all children access their year group specific objectives. Teachers and Learning Support Assistants plan programmes together for maths skills to provide extra support and teaching. The SLT monitors progress of these pupils.

'Dive Deeper' activities are planned for every lesson so children can further develop their skills and be challenged with problem solving and reasoning activities within their year groups. Activities are not set with 'bigger numbers' but for children to make links and answer questions with a broader understanding.

Parental/Community involvement

We value parent involvement in children's development of mathematics and promote a home school partnership in the following ways:

- Sharing information – curriculum workshops and evenings, newsletters and parents' leaflets
- Celebrations – assemblies, certificates and displays,
- Homework - in line with our homework policy and home/school agreement

Parents are welcomed into the school to support children in Mathematics. Guidance is provided by the teacher in line with our policy for volunteers in school.

We have strong links with local playgroups and secondary schools to ensure a smooth transition.

Assessment, Recording and Reporting

Assessments are made in line with the school assessment policy. Teachers use Target Tracker to assess pupils' mathematics and report to parents twice a year at parents' evenings and in pupils' termly reports. Children are assessed on entering the school and are formally assessed at the end of each key stage.

Teachers use assessment for learning to ensure planning is based on prior attainment and that pupils know what they need to do to achieve the next steps. Group or individual targets are set accordingly. Marking is in line with the school marking and feedback policy.

The teacher keeps individual records. These include a times table record and any other information that enables the teacher to deliver an effective, relevant curriculum which builds on prior attainment and meets the needs of pupils.

Staff Development

Teachers are expected to keep up to date with subject knowledge and use current materials that are available in school or on the DfE (National Archives) website.

Training needs are identified as a result of whole school monitoring and evaluation, performance management and through induction programmes. These will be reflected in the School Development Plan which includes the Mathematics Action Plan. The

Mathematics co-ordinator will arrange for relevant advice and information, such as feedback from courses or newsletters, to be disseminated. Where necessary the Mathematics Co-ordinator leads or organises school based training.

Additional adults who are involved with intervention programmes will receive appropriate training.

Curriculum Leadership

Role of the Subject Leader:

- ◆ Be aware of the standards in mathematics in the school.
- ◆ Ensure teachers are familiar with the New National Curriculum 2014 in mathematics.
- ◆ Ensure teachers teach a 'Mastery' approach.
- ◆ Attend SPD provided through network meetings.
- ◆ Scrutinise example of mathematics planning and provide feedback and support as necessary.
- ◆ Provide planning surgeries for NQTs to support them with teaching mathematics and other teachers when necessary.
- ◆ Inspire an exciting and creative approach to mathematics teaching.
- ◆ Support mathematics teaching through advice, guidance, PD and resources.
- ◆ Share information acquired from courses or other sources that may be beneficial to staff.
- ◆ Review the mathematics policy and monitor its implementation.
- ◆ Regularly evaluate the mathematics scheme of work and amend as necessary.
- ◆ Manage, maintain and organise resources.
- ◆ Effectively manage the mathematics budget.
- ◆ Report to parents, governors and others when appropriate.

Monitoring and Evaluation

Mathematics is monitored by teachers, the Mathematics Co-ordinator, the Headteacher and the Mathematics Governor. Annual monitoring includes: planning, lesson observations, work and book scrutinies, pupil interviews, etc. Having identified priorities, the Mathematics Co-ordinator constructs an action plan that forms part of the School Development Plan.

Review

This policy was reviewed in April 2019.

This policy will be reviewed every three years, in line with school policy.

Policy renewal date: April 2022.