



Hazel Slade Primary Academy
Mathematics Policy



Date	Review date	Maths Coordinator	Nominated Governor
March 2020	March 2021	Sarah Camacho	Mrs Alison Davies

Maths Philosophy

Mathematics teaches children how to make sense of the world around them through developing their ability to calculate fluently, reason and solve problems. It enables children to understand relationships and patterns in both number and space in the world around them. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many cultures to the development and application of mathematics. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment.

Aims

The aims for teaching mathematics at Hazel Slade are:

- become fluent in the fundamentals of mathematics 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
- to promote enjoyment and curiosity of learning through practical activity, exploration, investigation and discussion;
- to understand the importance of mathematics in everyday life.
- to develop children's ability to move between concrete, iconic and symbolic representations fluently and confidently.
- to promote confidence and competence with understanding and using numbers and the number system;
- to develop a practical understanding of the ways in which information is gathered and presented;
- to explore features of shape and space, and develop measuring skills in a range of contexts;
- to enable children to select and use a range of mathematical tools effectively.
- to promote and provide opportunities for children to develop the core learning skills of confidence, determination, curiosity, aspiration, teamwork, independence, communication and focus.
- to develop sustainable learning for pupils for the future

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 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.

Teaching and learning style

Hazel Slade Primary Academy is introducing and developing a Mastery approach to learning in Mathematics. The mastery of the maths curriculum is something that we want *all* pupils to acquire. Our mastery approach to teaching maths has the aim — to help pupils, over time,

acquire mastery of the subject. We believe mastery of maths means a deep, long-term, secure and adaptable understanding of the subject which develop:

- fluency (rapid and accurate recall and application of facts and concepts)
- a growing confidence to reason mathematically
- the ability to apply maths to solve problems, to conjecture and to test hypotheses.

We aim for all children to achieve mastery of the key areas and domains in Maths, narrowing the gap between the most and least able learners. The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress through will always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly will be challenged through being offered rich and sophisticated problems within same day intervention before any acceleration through new content. Those who are not sufficiently fluent with earlier material will consolidate their understanding through same day intervention. Intervention is also achieved through a range of strategies, such as the use of differentiated work, booster programmes (such as 1stClass@Number, Numbers Count and Springboard Maths) and SEN intervention programmes (such as Numicon - Closing the Gap). There is also the use of peer-support pairs and guided or targeted input from the teacher and teaching assistant during same day intervention time.

We believe that all pupils, when introduced to a key new concept, should have the opportunity to build competency in this topic by taking the concrete-pictorial-abstract approach.

Concrete - students should have the opportunity to use concrete objects and manipulatives to help them understand what they are doing.

Pictorial - students should then build on this concrete approach by using pictorial representations. These representations can then be used to reason and solve problems.

Abstract - with the foundations firmly laid, students should be able to move to an abstract approach using numbers and key concepts with confidence.

During our daily lessons we encourage children to ask as well as answer mathematical questions. We develop their ability to independently select and use appropriate concrete apparatus to support their conceptual understanding and build procedural fluency. They have the opportunity to independently access and use a wide range of resources, such as bead frames, bead strings, number lines, Dienes/ Base 10 apparatus, place value counters, Numicon, multilink, place value cards, Cuisinaire rods and other small apparatus to support their work. We develop the children's ability to represent problems using visualisation skills, jottings and pictorial representations. Mathematical dictionaries are used where appropriate. ICT is used in mathematics lessons for modelling ideas and methods. Wherever possible, we provide meaningful contexts and encourage the children to apply their learning to everyday situations. At all times the policy aims are the drivers behind the planning and delivery of lessons.

Children are taught within their classes in mixed ability groupings.

Maths Timetable

KS1 - 1 x 45 min maths lesson and a 20min Same Day Intervention Daily

KS2 - 1 x 45 min maths lesson and a 20min Same Day Intervention Daily

Same Day Intervention - teachers use assessment for learning in every lesson to identify if any children need same day intervention. The same day intervention is undertaken during the 20 minute session after the initial teaching session. This is to ensure 'keep up not catch up'.

Mathematics Curriculum Planning

Mathematics is a core subject in the National Curriculum, and we use the new Mathematics Programmes of Study: Key stages 1 and 2 (dated September 2014) as the basis for our school curriculum, ensuring we teach the relevant statutory content. We have adopted the White Rose Maths Hub Mastery Small Steps Scheme of Work which places number as a priority and a large proportion of time is spent reinforcing number to build competency.

The scheme ensures teachers stay in the required key stage and support the ideal of depth before breadth. It also ensures students have the opportunity to stay together as they work through the schemes as a whole group. The scheme also provides plenty of time to build reasoning and problem solving elements into the curriculum. Other resources such as Maths on Target, Nrich, NCETM and My Mini Maths and Pie Corbett 5 a day maths are used to supplement the teaching.

The school's Calculation Policy details the approach and learning progression in the main operations of addition, subtraction, multiplication and division, and also includes examples of how CPA which can be used to support pupils' learning in each area. It is a working document that all staff are expected to apply.

Our curriculum planning in mathematics is in three phases (long-term - a yearly overview taken from the White-Rose Small steps, medium-term - term-by-term objectives taken from the White-Rose Small steps and short-term - these are in the form of our Flipchart plans). Our long-term plans taken from White Rose provides an overview to ensure the appropriate content is covered in each year group.

Our medium-term mathematics plans from White Rose give details of the main teaching objectives for that theme or topic and provide the structure of the 'mastery' approach to our curriculum design and organisation. This means that areas of Maths will be taught in longer 'blocks'. For Number, Addition and Subtraction, Multiplication and Division and Fractions these blocks will be taught in a progressive manner across the year. Blocks relating to other areas of Maths may only be taught once and not re-visited until the following year. However, there is an expectation that at least three out of five lessons each week will still contain some content relating to the four operations.

The short-term Flipchart plans contain the specific learning intentions, guided teaching, independent and group activities, same day intervention work. The class teacher keeps these individual flipcharts as well as uploading them onto the school server. The subject leader and class teacher will discuss them on an informal basis as part of the subject leader's monitoring, as well as when more formal monitoring takes place.

Links with other curriculum areas

Our school runs a flexible, creative theme-based curriculum, and although much of the Mathematics is taught during a daily maths lesson, we constantly seek to make meaningful cross-curricular links through our themes in order to embed maths into the bigger picture of each child's learning, and to provide real life relevance to the concepts and skills that they are acquiring. This is a two-way process, so sometimes the maths objectives may be taught as part of another topic, and other times the other curricular objectives may be taught as part of the maths. Opportunities to do this may be identified at either the long-term, medium-term or short-term planning stage.

Information and communication technology enhances the teaching of mathematics significantly. It also offers ways of impacting on learning which are not possible with conventional methods. Teachers can use software and i-pad apps to present information

visually, dynamically and interactively, so that children understand concepts more quickly. Children may use ICT (including i-pad apps) in order to learn or apply mathematical concepts and skills either within maths lessons (Mathletics) or in other curriculum areas.

Presentation of Maths Work

Each lesson must include the short date (e.g. 3.11.14) at the top of the page with the title written on the next line directly underneath. Both must be underlined with a ruler. Pages are to be folded in half and children are to work down the page in two columns using the 2 squares in and 2 squares space in between each sum, so that all working can be seen clearly. Children are encouraged to present their written calculations in pencil as neatly as possible by putting one digit in a square. A ruler must be used for the drawing all lines. The emphasis of neatly produced work is important as poor presentation and careless setting out can lead to incorrect calculations. Worksheets are discouraged especially whole page ones however it is acknowledged that there maybe a need to have small sheets stuck in to books in order to support learning for examples - mental maths activities e.g. Click Maths / Arithmetic Questions or worded problems in problem solving and reasoning. There is no need for worksheets for fluency work.

Resources and Learning Environment

We aim to create a rich and stimulating Maths environment that promotes learning and independence through Maths Working Walls in each classroom. Maths Working Walls and resource areas in the classroom will:

- Support the children with their Maths.
- Contain information relevant to current teaching (key vocabulary, models/images, success criteria, targets).
- Include Maths resources clearly labelled and accessible for the children.
- Be clear/large enough for children to read.
- Be changed regularly so it doesn't become just 'wallpaper'.

Home/school links

We aim to raise the profile and understanding of our approach to Maths with parents, and they are encouraged to be actively involved in supporting children's learning in school in a number of ways. Parent Workshops are organised with relation to the curriculum, assessment and supporting children's learning. There are links to Maths websites and other useful documents and resources on the school website.

Homework will be sent home as appropriate in order to reinforce concepts and skills being learned in school. Mathletics is available to pupils who are encouraged to complete an hour a week on the internet based program.

Assessment

Assessment for learning

Assessment for learning is embedded into each lesson and teachers use assessment for learning techniques and strategies on a daily basis in order to identify pupils' strengths and difficulties, inform the next steps for each child's learning and improve the learning outcomes for each child. The use of Same Day Intervention supports this.

Summative assessment

We make termly summative judgements of each child's achievement against the objectives taught that term. We use end of term assessments written by White Rose Maths Hub in line with the scheme of work.

Some of the evidence base for these assessments may also come from day-to-day class work, but there is an emphasis on evidence that comes from specific tasks and tests used to assess the degree of retention, independence and breadth of application shown. We use these judgements to assess progress and achievement against individual, school and national targets. We identify and target those children not making expected progress and intervene accordingly.

Assessment is tracked half termly using the school's tracking system and pupils' progress is discussed in Pupil Progress Meetings. Children who haven't made progress are a focus in teacher's planning. We pass all assessment and tracking information on to the next teacher at the end of the year, so that s/he can plan for the new school year.

Teachers in Year 2 will also use the statutory End of Key Stage National Curriculum tasks and tests as one part of the assessment picture for each child and teachers in Year 6 will also use the statutory End of Key Stage National Curriculum Tests.

We give parents the opportunity to discuss their child's progress and attainment each term in a teacher/parent meeting. We also write a summary of each child's progress and achievement in the Annual Report for parents.

Governors

Hazel Slade Primary Academy has a designated link governor who:

- a) Meets with the Mathematics Subject Leader at least once a year to find out about;
 - the school's systems for planning work, supporting staff and monitoring progress;
 - the allocation, use and adequacy of resources; and
 - how the standards of achievement are changing over time.
- b) Visits School and talks to pupils about their experiences of Mathematics;
- c) Promotes and supports the positive involvement of parents in Mathematics;
- d) Attends training and other events relating to the Mathematics curriculum as appropriate;
- e) Reports jointly with the Subject Leader, to the governing body with recommendations, if appropriate, once a year.
- f) is understanding and supportive of our aims in the learning and teaching of Mathematics and to review this policy annually.

The Head teacher will:

- Provide support by encouraging staff and praising good practice.
- Monitor learning and teaching through lesson observations.
- Monitor planning and reviews.
- Give feedback to teachers following lesson observations.
- Support staff development through in service training and provision of resources.

The Mathematics Leader will:

- Provide a strategic lead and direction for Mathematics in the school;
- Provide support and advice to staff in the delivery of the Mathematics programme of study;
- Remain informed about current developments in the subject by attending INSET sessions and being involved in independent research and reading;

- Disseminate relevant information to staff;
- Deliver INSET sessions to staff, to support staff development;
- Monitor and evaluate teaching and learning of Maths;
- Monitor standards in the subject, through planning and work scrutiny, statistics, quality of teaching and pupil assessments;
- Order and maintain resources to enhance effectiveness of Maths teaching within the school;
- Consider with staff and work with SMT members in the evaluation and planning of actions included within the School Development Plan.

The Class teacher will:

- Be responsible for the teaching of Maths as set out in the policy.
- Provide planning and reviews for the Head Teacher and Maths leader to have access to.
- Provide samples of maths work to the Maths leader when required.
- Assess children's work in order to detail future planning.

SEN

At our school we teach mathematics to all children, whatever their ability and individual needs. Mathematics forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our mathematics teaching we provide learning opportunities that enable all pupils to make good progress. We strive hard to meet the needs of disadvantaged and vulnerable children, including those pupils who generate Pupil Premium, those with special educational needs, those with disabilities, and those learning English as an additional language. We take all reasonable steps to achieve this.

When progress falls significantly outside the expected range, the child may have special educational needs. Our assessment process looks at a range of factors such as classroom organisation, teaching materials, teaching style and differentiation so that we can take some additional or different action to enable the child to learn more effectively. Ongoing assessment for learning, and summative assessment allows us to consider each child's attainment and progress against expectations. This ensures that our teaching is matched to the child's needs.

Intervention through School Action and School Action Plus will lead to the creation of an Pupil Education Plan (PEP) for children with special educational needs. The PEP may include, as appropriate, specific targets, strategies and intervention programmes relating to mathematics, such as the Wave 3 Maths Intervention, Numicon- 'Bridging the gap' (for example).