

Hall Orchard Barrow CE Primary (Academy)

Mathematics Policy

Introduction and Aims

This policy outlines the teaching, organisation and management of the mathematics teaching and learning at Hall Orchard C of E Primary School. The school's policy for mathematics is currently based on the National Curriculum (2014). The implementation of this policy is the responsibility of all the teaching staff.

Mathematics is a network of concepts and relationships which teaches us how to make sense of the world around us through developing the ability to calculate, to reason, to solve problems and to think in abstract ways. Mathematics is used to analyse and communicate information and to tackle a range of practical tasks and real-life problems. It is integral to all aspects of life and with this in mind, we endeavour to ensure that children develop a healthy and enthusiastic attitude towards mathematics that will stay with them in the future.

We aim to provide pupils with a mathematics curriculum which will produce individuals who are numerate, creative, independent, inquisitive, enquiring and confident. We also aim to provide a stimulating environment and adequate resources so that pupils can develop their mathematical skills to their full potential.

Specifically, it is our aim to:

- Ensure that pupils become **fluent**, can **reason mathematically** and **solve problems**
- promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion
- develop logical thinking and reasoning skills through a natural curiosity and investigative approach
- promote confidence and competence in mathematical knowledge, concepts and skills so that children are proud to share their achievements
- promote initiative and the ability to work both independently and in cooperation with others, communicating mathematically
- develop an ability to use and apply mathematics across the curriculum and in real life.

Teaching and Learning

As a school, we deliver maths through the Numicon approach which is centred around 3 guiding principles:

- Communicating mathematically (being active, illustrating, talking)
- Generalising
- Exploring relationships

During lessons we encourage children to ask as well as answer mathematical questions. Children have the opportunity to use a wide range of Numicon-specific resources as well as additional resources such as number lines, Cuisenaire rods, number squares, and many other apparatus and materials (e.g. from the NCETM/Nrich websites) to support their work. Children and teachers use ICT/ Numicon software in mathematics lessons to support the 'concrete-pictorial-abstract' (CPA) teaching philosophy, and to assist with modelling ideas and methods. ICT will also involve the use of IPADS, calculators, and audio-visual aids. All classrooms also have a visualiser.

As of 2018, we became a Numicon Advocate School.

Teaching Programme

- The teaching programme stems from the Numicon scheme and follows the CPA Approach. Mathematics lessons take place daily and are based around a flexible structure incorporating teacher input, pupil-led investigative and exploratory activities, mini-plenaries, effective questioning (teacher

and pupil), opportunities to reason, peer and self-assessment activities. Mathematical discussions address misconceptions, identify progress, summarise key facts and ideas, make links to other work and highlight next steps.

- Oral and mental work across the range of mathematics involves opportunities to rehearse, sharpen and develop skills.
- From Year 2, paper Times Table Rockstars activities will be completed three times per week. Pupils will also have opportunities, where appropriate, to complete screen-based activities. Pupils will be encouraged to complete activities at home.

Pupil's work

A range of mathematical representations will be apparent in pupil's books, evidencing the concrete-pictorial-abstract approach to mathematical thinking and understanding. There will be evidence of activities to promote mathematical fluency as well as problem-solving activities with problems presented in a range of ways, e.g. with differing structures/ contexts. Opportunities for pupils to record their reasoning will be evident at an appropriate level. High expectations for presentation will be maintained. Marking of work will follow the Feedback and Marking policy. Use of Numicon Assessment Milestone cards will be evident in books. Regular work scrutinies take place and feedback is given to the relevant members of staff.

Learning Environment

- Maths working walls will be present and used within lessons. See Learning Environment Policy for details.
- Times Tables Rock Stars displays will celebrate success and motivate pupils.

Links between mathematics and other subjects

Mathematics links with many subjects across the primary curriculum and opportunities are taken to draw mathematical experience out of a wide range of activities. Mathematics contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. For example, we encourage children to read and interpret problems in order to identify the mathematics involved. The children explain and present their work to others. Younger children enjoy stories and rhyme that rely on counting and sequencing. Older children encounter mathematical vocabulary, graphs and charts when using non-fiction texts. It is our aim to foster stronger links between International Primary Curriculum (IPC) topics and mathematics. This will allow children to begin to use and apply mathematics in real contexts - an integral part of the mathematics curriculum.

Homework

All year groups have access to 'MyMaths' to further their learning. Weekly homework is set via MyMaths in Key Stage 2. Activities can be set for the whole-class or for specific groups, and can include activities to act as a pre-teach as well as for consolidation. Pupils receive instant, online feedback once they have completed the homework, however class teachers will monitor that homework has been completed and use feedback to address misconceptions and inform planning.

Pupils are also encouraged to utilise Times Tables Rock Stars at home.

Additional Needs

Pupils with SEND and Individual Learning Plans

We strive to provide a broad and balanced education to all children, whatever their ability. The daily mathematics lesson is appropriate for almost all pupils. Teachers will include all pupils through differentiation, providing learning opportunities that are matched to the needs of children with learning difficulties. Lessons will be scaffolded appropriately to ensure less able/ SEND pupils can access the appropriate year group's curriculum. Work in mathematics takes into account the targets set for individual children with Special Educational Needs. We also use LSAs to support children with statements and other

identified children. All children benefit from the emphasis on oral and mental work and participating in watching and listening to other children demonstrating and explaining their methods.

Interventions

Intervention groups will be determined based on teacher assessment and question level analysis. Maths consolidation will be directed by the class teacher. Wave three interventions will be based on Numicon Breaking Barriers and PiXL.

Greater Depth

Greater depth pupils will be provided with opportunities to demonstrate their ability to go deeper and make mathematical connections through challenging activities designed to develop breadth of mathematical thinking and reasoning skills

Assessment

Assessments will be used to inform teaching in a continuous cycle of planning, teaching and assessment. Formative assessment will be an informal part of every lesson to check children's understanding and inform future planning. It will be ongoing through questioning, child-led investigative/exploratory activities, observation, feedback and marking, and peer and self-assessment.

Regular assessment will be against the Numicon milestone statements. Appropriate times for this are noted on the Numicon Teaching Progression document and teachers will use the Milestone Assessment cards to support judgements.

Summative assessment will be gathered through following the PiXL test cycle. Question level analysis will be used to inform planning and intervention.

Teacher judgements are inputted twice a year and pupils will be assessed against objectives taught to date. Pupils will be assessed as Emerging, Expected or Exceeding.

Parental Involvement

End of term progress updates are completed for parents in the autumn and spring term. End of year reports are completed before the end of the summer term and parents are given opportunities to discuss their child's progress at two separate parents' evenings during the academic year.

Parental workshops and information evenings are held regularly to support parents understanding of the teaching of maths and end of year/key stage expectations. Our calculation policy is available for parents to access on our school VLE.

Management of Mathematics

Monitoring of the standards of children's work and of the quality teaching in mathematics is the responsibility of the mathematics subject leader and senior leadership team. The work of the subject leader also involves supporting colleagues and engaging parents in the teaching of mathematics (sharing concepts from the Maths Specialist Programme (MSP) where possible), being informed about current developments in the subject, providing a strategic lead and direction for the subject in the school, organising and leading appropriate CPD.

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