PIPWORTH COMMUNITY PRIMARY SCHOOL

Article 28: I have a right to an education.
Article 29: I have a right to be supported to achieve in education.

MATHEMATICS POLICY

Intent

At Pipworth Community Primary School we believe that mathematics is a tool for everyday life and helps us make sense of the world around us through calculating, reasoning and solving problems. It enables children to understand and appreciate relationships and patterns in numbers, shapes, data and real life situations. Our curriculum allows opportunities for children to experience and apply mathematics in a variety of ways which are both motivating and rewarding and where possible through cross curricular links. Mathematics is planned with a 'Mastery' approach in mind where by all pupils are provided with opportunities to practise new skills, concepts and knowledge before being given opportunities to apply this knowledge and understanding through a variety of approaches, such as reasoning and problem solving, before moving into deeper learning challenges where children are encouraged to explain mathematical concepts and investigate them further. Skills progression and essential knowledge are key learning tools and all pupils need the opportunity to 'extend and deepen' within learning sequences. We want to provide our pupils with a deep understanding of the subject through concrete, pictorial and abstract approaches. Through this approach we aim to enable more of our children to achieve a higher understanding of mathematical knowledge and concepts whilst narrowing gaps in attainment amongst pupils. Mastering math fluency and number sense is critical to setting students up for success in future mathematics courses.
The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. In LKS2 teachers focus on ensuring number facts are further developed and that pupils are secure in multiplication facts so they are able to apply these to a wider range of problems and activities in UKS2.

We all want our children to achieve excellence in mathematics no matter what their starting points are in order to compete with others on a level playing field. All pupils to have the opportunity to experience success in learning and to excel.

Mastery in Mathematics

•Teachers reinforce an expectation that all pupils are capable of achieving high standards in mathematics.

•The large majority of pupils progress through the curriculum content at the same pace. Differentiation is achieved by emphasising deep knowledge and through individual support, resources and intervention (commonly pre-teach).

•Teaching is underpinned by methodical curriculum design and supported by carefully crafted lessons and resources to foster deep conceptual and procedural knowledge and fluency through opportunities to practise and apply before moving into deeper learning.

•Practice and consolidation play a central role. Carefully designed variation within this builds fluency and understanding of underlying mathematical concepts in tandem. There are daily opportunities for retrieval practise.

•Teachers use precise questioning in class to test conceptual and procedural knowledge, and assess pupils regularly to identify those requiring intervention so that all pupils keep up and moving children on when they are ready. All pupils have opportunities to apply and reason mathematically.

•The intention of these approaches is to provide all children with full access to the curriculum, enabling them to achieve confidence and competence – 'mastery' – in mathematics, in order that they have the mathematical skills and fluency they will need in the future and wider world.

Implementation

The content and principles underpinning the 2014 Mathematics curriculum and the Maths curriculum at Pipworth Community Primary School convey how our maths curriculum is approached. To ensure whole consistency and progression, the school uses National Curriculum as well as carefully developed Maths Progression Documents. We also use the White Rose Scheme in order to access a range of problems and investigations.

We aim to:

- To promote high standards in mathematical achievements of all our pupils regardless of social background, culture, age, gender or ability.

- To foster enthusiasm and enjoyment in mathematical learning through practical activities, exploration and discussion.

- To equip children with the skills required to approach mathematics in everyday life with confidence and proficiency.

- To develop an understanding of mathematical concepts so that if pupils are able to see how the facts and processes arise and function, they will be better able to assimilate new maths knowledge and link that knowledge to what they have previously learnt gaining a 'bigger picture' of a concept through school.

- To raise aspirations e.g. through enterprise weeks, STEM learning and careers weeks

- To develop a wide base of mental calculation strategies alongside rapid recall of known numerical facts.

- To create opportunities for children to represent and structure their ideas using a wide variety of recording methods (see Calculations Policy).

- To explore features of shape and space, and develop measuring skills in a range of contexts.

- To develop a practical understanding of the ways in which information is gathered and presented.

- To develop the ability to solve problems through decision-making and reasoning in a range of contexts.

- To encourage the use and selection of appropriate mathematical tools and resources.

- To allow for opportunities for speaking and listening.

- To provide opportunities for using and applying mathematics in other subjects in addition to discrete maths lessons.

- To create a stimulating and exciting mathematical environment with effective working walls.

- To develop the correct use of mathematical vocabulary and language.

- To provide a range of resources to support and enhance the children's learning.

- To teach mathematics in line with the National Curriculum PoS and expectation for each year group.

Teaching and Learning – lesson structure

Mathematics is taught daily to ensure children are getting frequent opportunities to become fluent mathematicians. Within a lesson many AfL (assessment for learning) strategies are used in order to deepen children's learning on rapidly or in order to consolidate their understanding as well as addressing common misconceptions and retrieving content needed in order to access the new learning. Teachers support and deepen children's learning through their use of questioning and carefully selected activities as well as within guided maths groups. Within lessons, children have an opportunity to use a wide range of resources and manipulatives as well as looking at a variety of models and images to support their learning and understanding of new concepts.

Lessons at Pipworth follow a common structure which teachers use to ensure key learning takes place based on the schools work around Rosenshines Principals of Instruction and Pipworth's 8 Habits of Effective Teaching.

Teaching is adaptive to ensure all children can access a learning objective within a lesson and pupils learn alongside their peers. Support from adults, resources or models and images are used to further support children's understanding. LSAs provide support for targeted groups of children within class and often support children before a new session or concept is introduced in the classroom through pre – teaching groups. . Working Walls are used within lessons to support and deepen children's learning.

Planning

Mathematics is planned using the National Curriculum and is carried out collaboratively in year group teams with class teachers making it pertinent to their own class each week. Schemes such as The White Rose scheme are used to inform planning and support teacher's subject knowledge in planning small steps to success within National Curriculum Objectives. Planning includes daily opportunities for retrieval of prior learning as well as clear Learning Objectives and steps to success. Teachers plan opportunities for children to practise new skills and concepts in a variety of different ways so children become fluent in a skill. They then plan for opportunities for children to apply and reason using the skill learnt through for example 'Prove it!' type questions, problems or investigations. Deeper learning challenges are planned for those children who are able to move on to this level, with the opportunity for children to be supported if needed through adult support or resources. It is expected that all children, whatever their level of attainment have access to opportunities whereby they can apply their understanding and knowledge.

Foundation Stage 1 and 2 teachers plan following the guidelines set out in the EYFS documents and plan opportunities for children to move towards ELG by the end of FS2. Children are given many opportunities to develop their understanding of number, measurement, pattern, shape and space through varied activities that allow them to enjoy, explore, practise and talk confidently about mathematics. The continuous provision within Foundation Stage is carefully planned with teacher led activities and maths opportunities are also planned for outdoors.

Impact

The impact of our mathematics curriculum is that children at Pipworth understand the relevance and importance of what they are learning in relation to real world concepts that will prepare them for the next stages in their schooling, careers and life. Children know that maths is an essential life skill that they will rely on in many areas of their daily life. Children have a positive view of maths due to learning in an environment where maths is promoted as being an exciting and enjoyable subject in which they can investigate and ask questions; they know that it is OK to be 'wrong' and that this can strengthen their learning because the journey to finding an answer is most important. Children are confident to 'have a go' and are able to access a range of manipulatives with in a lesson to help them succeed. Our maths books evidence work of a good standard of which children clearly take pride; the range of activities demonstrate good coverage of fluency, reasoning and problem solving. A wide range of strategies are used to measure the impact of our maths curriculum. Our teaching sequence allows for a range of assessment opportunities so pupils can demonstrate their understanding. Mathematical discussion is encouraged, therefore teachers can address misconceptions quickly.

A wide range of strategies are used to measure the impact of our mathematics curriculum. Formative assessments are also carried out by teachers within each lesson which will allow them to adapt lessons and be responsive as well as to inform future planning. Retrieval is built into the planning and lessons so that children have the opportunity to revisit key skills and knowledge needed in order to understand new learning as well as have an opportunity to store it in their long term memories. Additionally, summative assessments are carried out at the end of each block of learning. As a result of these assessment, pupils' misconceptions or gaps in subject knowledge, skills, behaviours and attitudes are addressed and additional teaching and support is provided whilst some pupils have more opportunity to deepen their learning.

Monitoring

The Subject Leaders will monitor the effectiveness of the maths curriculum through carrying out the regular subject 'dip-ins' and monitoring activities. A team of leaders has been established, each with an expertise in either EYFS, KS1 or KS2, in order to offer expertise in each phase. This process typically focuses on issues such as the sequencing and progression of the curriculum, checking the implementation of the intended curriculum as well as whether learners are achieving the

expected learning outcomes. It monitors the extent to which the curriculum is adapted to suit the diverse needs of all learners. Feedback is celebrated and shared with staff as well as areas for development being added to action plans. Whole school CPD may be planned as a result of monitoring activities or individual staff may receive more bespoke support to improve outcomes for pupils. These evaluations are quality assured by the Senior Leadership and Governors.

The effectiveness of maths teaching is also monitored through pupil voice throughout the course of the year. The maths leaders are beginning to develop a range of questions for pupils in order to assess the impact of the planned curriculum and understanding of key concepts through what pupils have learnt and retained over time.

EYFS

From EYFS 2 teachers are using a new programme, called “Mastering Number' which is aimed at strengthening the understanding of number, and fluency with number facts, among children in the first three years of school. Daily sessions are planned and taught 4 days a week with the remaining session focusing on shape and pattern. In Nursery children have access to mathematical provision and activities throughout the setting and provision. They are taught about early number, measurement and geometry.

The maths leaders have a clear understanding of how the maths curriculum builds on skills and knowledge learnt in EYFS from our Bridging Curriculum. They understand the skills and knowledge pupils have learnt in the early years which form the building blocks for knowledge and understanding needed in order to begin learning from National Curriculum. This enables teachers to build on what has gone before and enable pupils to access prior learning from an early age. EYFS staff have planned bridging objectives in order to bridge the transition from FS 2 into Year 1

Organisation of knowledge	Number	Measurement	Geometry

Nursery	**Mathematics** • Develop fast recognition of up to 3 objects, without having to count them individually ('subitising'). • Recite numbers past 5. • Say one number for each item in order: 1, 2, 3, 4, 5. • Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle'). • Show 'finger numbers' up to 5. • Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. • Experiment with their own symbols and marks as well as numerals. • Solve real world mathematical problems with numbers up to 5. • Compare quantities using language: 'more than', 'fewer than'.	**Mathematics** • Make comparisons between objects relating to size, length, weight and capacity.	**Mathematics** • Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'. • Understand position through words alone – for example, "The bag is under the table," – with no pointing. • Describe a familiar route. • Discuss routes and locations, using words like 'in front of' and 'behind'. • Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc. • Combine shapes to make new ones – an arch, a bigger triangle etc. • Talk about and identifies the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs' etc. • Extend and create ABAB patterns – stick, leaf, stick, leaf. • Notice and correct an error in a repeating pattern. • Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'

Reception	**Mathematics** • Count objects, actions and sounds. • Subitise. • Link the number symbol (numeral) with its cardinal number value. • Count beyond ten. • Compare numbers. • Understand the 'one more than/ one less than' relationship between consecutive numbers. • Explore the composition of numbers to 10. • Automatically recall number bonds to 10. **ELG: Number** • Have a deep understanding of number to 10, including the composition of each number. • Subitise (recognise quantities without counting) up to 5. • Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts. **ELG: Numerical Patterns** • Verbally count beyond 20, recognising the pattern of the counting system. • Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. • Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.	**Mathematics** • Compare weight, length and capacity.	**Mathematics** • Select, rotate and manipulate shapes to develop spatial reasoning skills. • Compose and decompose shapes so that children recognize a shape can have other shapes *within it*, just as numbers can. • Continue, copy and create repeating patterns.

KS1 Readiness Objective	• To count confidently. • To show a deep understanding of numbers up to 10. • To match numerals with a group of objects to show how many there are (up to 10). • To be able to identify relationships and patterns between numbers up to 10. • To show an awareness that numbers are made up of smaller numbers, exploring partitioning in different ways. • To add and subtract one in practical activities.	• To measure themselves and everyday objects using a mixture of non-standard and standard measurements. • To develop spatial reasoning using measures. • To begin to order and sequence events using everyday language related to time. • To begin to measure time with timers (e.g. digital stopwatches and sand timers) and calendars. • To explore the use of different measuring tools in everyday experiences and play.	• To use informal language (e.g. heart-shaped, hand-shaped) and some mathematical language to describe shapes around them. • To use spatial language, including following and giving directions, using relative terms. • To develop spatial reasoning with shape and space. • To compose and decompose shapes, and understanding which shapes can combine together to make another shape.

SEND

Through the Maths curriculum we provide high quality teaching for all our pupils including those with SEND. We do this through:

•Scaffolding
•Explicit Instruction
•Manipulatives, models and images
•Cognitive and Metacognitive strategies: chunking, collaborative learning, pre teaching vocabulary, revisiting prior learning
•Flexible groupings
•Quality Interventions
•Rosenshine's Principles of Instruction

Mathematics teaching in other curriculum areas

We work with a number of outside agencies who work alongside children in school developing their skills and knowledge within the STEM areas.

Sheffield Hallam University
Careers Week e.g. Women working in Engineering.
Sheffield Advanced Manufacturing Research Centre (AmRc)
Makers Family Van- where parents had the opportunity to come into school and investigate and make lots of different projects.
Makers Van for KS2- Lots of fantastic hands on activities looking at robotics, engineering, problem solving, and lots more.
Robotics club with SSELP schools for our Y5 and Y6 children

Mathematics and ICT

Information and communication technology enhances the teaching of mathematics significantly, because ICT is particularly useful for mathematical tasks. It also offers ways of impacting on learning which are not possible with conventional methods. Teachers can use software to

present information visually, dynamically and interactively using interactive whiteboards, so that children understand concepts more quickly. Younger children use ICT to communicate results with appropriate mathematical symbols. Older children use it to produce graphs and tables when explaining their results, or when creating repeating patterns, such as tessellations. When working on control, children can use both standard and non-standard measures for distance and angle. They can also use simulations to identify patterns and relationships. The school has currently purchased IPad's for use within classrooms and maths lessons.

Planning

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Assessment

AfL strategies are used within lessons and it is expected that children will receive live feedback within a lesson to ensure understanding and progression. Teachers use O Track to make summative assessments periodically over the year (see assessment policy). Teachers discuss progress at regular Pupil Progress Meetings and are encouraged to moderate within year group teams as well as at whole school PDM's and within the locality of schools.

The role of the Subject Leader:

There is a designated Maths Co-ordinator to oversee the planning and delivery of Maths within the school.
The coordinator will be responsible for
•Raising standards in Maths as a national curriculum subject and evaluating the effectiveness of teaching and learning within the subject
•Facilitating the use of Maths across the curriculum in collaboration with all subject coordinators as well as liaising and consulting with outside agencies where appropriate
•Developing their own role as subject leader through e.g. research, National College
•Providing or organising training to keep staff skills and knowledge up to date through up to three staff meeting slots per year
•Advising colleagues about effective teaching strategies, managing equipment and purchasing resources.
•Monitoring the delivery of the Maths curriculum and reporting to the SLT on the current status of the subject.
•Reporting the current status of the subject to designated School Governors.
•Action Planning linked to whole school priorities
•Updating the policy annually

Support from SLT/Curriculum lead will be given to subject leaders in order to further develop their role through:
•Mentoring subject leaders new to role
•Developing the role of subject leaders and providing professional development opportunities
•Guidance for Action planning linked to whole school priorities
•Support for monitoring
•Professional Development Opportunities for subject leaders e.g. National College, NPQ

Marking
See marking policy.

Homework
See homework policy.

Resources

All classrooms have a range of resources which are used frequently on a day to day basis and children from FS to Year 6 should have access to mathematical resources, manipulatives, images and models within lessons. . Resources are checked and audited.

Monitoring the Policy

Monitoring the standards of children's work, planning and quality of teaching in mathematics is the responsibility of the mathematics subject leader and the SLT (senior leadership team). Work and planning scrutinies are carried out periodically over the year and lesson observations take place three times over the school year – with staff having at least one of

these in mathematics. Individual and whole school feedback is given to staff with targets for improvement included which are revisited at subsequent scrutinies.

This policy represents a statement of a whole-school commitment to the teaching of mathematics and will be reviewed annually.

Policy Review
Updated December 2025
Due to be updated December 2026
Amanda Flint/Maisie Squires/Sophie Lancaster