WALBOTTLE VILLAGE PRIMARY SCHOOL

MATHEMATICS POLICY

Mathematics is a creative and highly interconnected 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

This document is a statement of the aims and principles for the teaching and learning of Mathematics at Walbottle Village. It supports our over-arching policies, including Assessment, S.E.N, Equal Opportunities, Display, Health and Safety as well as Teaching and Learning Policy and Marking Policy.

Rationale

At Walbottle Village, we recognise the pivotal role of mathematics within the overall context of the curriculum. Mathematics is based on patterns and relationships from the world around us. We appreciate its application in arts, sciences, finance health and leisure. Our school wishes to give all pupils the confidence to make sense of the world in which they live, by the understanding of, and the ability to think and communicate in, the language of mathematics.

Aims and Objectives

The mathematics in Walbottle Village Primary is designed to enable each pupil to develop their capabilities, aiming high: not only in their mathematical skills, but also

in their enthusiasm and fascination about mathematics itself, with a growing awareness of the ways different cultures have contributed to the development and application of mathematics.
We strive to increase pupil confidence in maths, so they are able to express themselves and their ideas using the language of maths with assurance.

We are continually aiming to raise standards of achievement of the pupils in our school. In our school we aim that children can:

- 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.

Cross-Curricular Links
Mathematics is often taught as a separate subject, yet it contributes to many areas of the Primary curriculum. At Walbottle Village we aim to identify these opportunities at the planning stage giving children ways to use maths in real context and providing reinforcement and enrichment through additional provision for numeracy in foundation subject lessons.

Statutory requirements
Statutory requirements for the teaching and learning of Mathematics and Numeracy are laid out in the Mathematics National curriculum, and in the EYFS documents.

Curriculum Organisation
The maths curriculum is progressive and relates to attainment and age. A progressions document has been created for use across the Early Years Foundation Stage in line with the new curriculum. Key stages 1 and 2 use the national curriculum programmes of study for mathematics.

Numeracy is taught and assessed under 8 main areas:

Number- place value
Number- addition and subtraction
Number- multiplication and division
Number- Fractions
Measurement
Geometry- Properties of shapes
Geometry- Position and direction

Statistics (key stage 2 only)

Principle Focuses of Teaching in Key Stage 1- (Years 1 and 2)

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. This should involve working with numerals, words and the 4 operations, including with practical resources [for example, concrete objects and measuring tools].

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.

Principle Focuses of Teaching in lower Key Stage 2- (Years 3 to 4)

The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the 4 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 with increasingly large whole numbers.

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.

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

Principle Focuses of Teaching in upper Key Stage 2- (Years 5 to 6)

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.

By the end of year 6, pupils should be fluent in written methods for all 4 operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Pupils should read, spell and pronounce mathematical vocabulary correctly.

Targeted Learning

At Walbottle Village, we plan for challenge at our children's identified differentiated levels. This is both within the class sessions and fine-tuned for even more directed learning for targeted pupils in small group situations.

Learning Support is also planned and directed by class teachers through either specific intervention programmes or Learning Support either within class time or by withdrawal additional to a daily numeracy lesson.

Beyond this, we also practise mental mathematics in key stage 1 and 2 and plan for opportunities for maths investigations.

One to one tuition (a short term specialised input for pupils who might otherwise slip below their potential standard) is also provided for relevant students.

In Mathematics at Walbottle Village we plan for:-

Whole class teaching, group and paired work as well as individual work planned by the teacher.

The pupils engage in:-

- the development of mental strategies
- written methods
- practical work
- investigational work
- problem-solving

- mathematical discussion
- consolidation of basic skills and routines.

At Walbottle Village we recognise the importance of establishing a secure foundation in mental calculation and recall of facts before standard written methods are introduced.

We include a vocabulary section in our numeracy planning to include the appropriate vocabulary to use in our teaching and children are expected to use it in their verbal and written explanations to aid fluency. Vocabulary is also included on our numeracy working wall.

We set work which is challenging, motivating and encourages the children to talk about what they have been doing.

Further information on effective Teaching and Learning styles can be found in the Teaching and Learning Policy.

Display

We recognise the important role display plays in the teaching and learning of mathematics by having maths work and learning prompts in the classrooms. Every class has a "working wall" mathematics display which has vocabulary, mathematical definitions or examples of mathematics principles covered in a current unit of work. The working wall is changed regularly to reflect the focus of learning in class.

In addition to this, each classroom should have a variety of learning support displays such as number lines (relevant to the children's work,) 100 grid, and other display materials that provide a visual support for the children's mental processes.

Interactive challenge displays are used to stimulate and consolidate learning through active involvement with the concept being learned and available as a free choice time task or as additional learning at home.

We also value the work completed by our students in numeracy and this is celebrated in good work assemblies and also examples of "work of the week" are on display in class.

Assessing Pupil Progress

At Walbottle Village we are continually noticing our pupils' progress. We see assessment as integral to the teaching process and endeavor to make assessments purposeful, allowing us to match the correct level of work to the needs of the pupils, to develop confidence as well as challenge.

Short-term assessments are an informal part of every lesson and are matched to the learning objectives and differentiated success criteria. These may not necessarily be

recorded formally, but can be evidenced in marking children's work or in evaluation notes on planning and will inform the teachers next immediate planning. As mentioned, pertinent comments are recorded on the short-term planning and can be noted in weekly evaluation books as a dialogue between the teacher and Senior managers or between classroom assistant and class teacher.

Mid-term reports with an individual's grade and new targets are sent home to inform parents regularly also.

At the end of the school year, summative assessments are made of each child in a national curriculum year group and these are reported in an annual school report. Children in foundation stage/early years are assessed against the numeracy strands within the new EY framework.

Parental Partnership

Regular links with parents are begun by parental interviews early in each new school year. A termly curriculum booklet for each class also identifies the mathematics focus as well as explaining homework arrangements. Mid-term reports inform parents of their child's current attainment in numeracy and new targets to aim towards.

Achievement certificates, in all areas of school, including mathematics continue these links and our school website refers to termly programmes of study for all year groups in numeracy.

All parents receive an annual written report on which there is a summary of their child's effort and progress in mathematics over the year and targets for the forthcoming year.

At the end of each Key Stage pupil levels of achievement against national standards are published to parents.

The vast majority of parents are signed up to Tapestry (EY) or Class Dojo. This is used as a means of sharing pupil success and supporting learning beyond the classroom.

Homework

Early Years pupils have regular opportunity for sharing Home Learning packs with their family and from Yr1 to Yr6 maths homework is linked to the learning of key facts. The children work towards achieving maths badges, starting with number bonds to 10 and working all the way up to Prime and squared numbers.

Termly curriculum booklets or year group texts keep parents informed of the amount of homework to expect the children to be given within their own year group. At Walbottle Village we see this as a vital link in pupil learning and expect all children to complete and return homework promptly.

Resources

Resources for the delivery of mathematics curriculum are mostly in classes with some shared centrally. Practical resources are used widely to accommodate differing learning styles and every class has learning displays to support visual learners.

I.C.T. materials are available, and all children make great use of smartboards or I pads giving excellent access to interactive software.

We have a variety of published materials to facilitate maths teaching but recognise the need for teaching of maths to be scheme assisted, not scheme led. The main resources being used at present to support the delivery of the framework is White Rose Maths resources.
Reference materials as well as teaching resources are becoming increasingly available online. These can be modified for specific teaching groups and classes.

Equal Opportunities
As a staff we strive to maintain an awareness of, and to provide for equal opportunities for all our pupils in mathematics. Walbottle Village aims to take into account cultural background, gender and special needs, both in our teaching attitudes and in the published materials we use with pupils.

Community Cohesion
Where appropriate links should be made in Mathematics teaching to help children learn about and understand how the local, regional, national and international community in which they live has and does contribute to our everyday maths (including calculation methods e.g. Egyptian multiplication, Roman Numerals, Greek symbols and geometrical discoveries as well as local adaptations of customised measurements), helping to develop an appreciation of other cultures. This can be the beginning of fascination in the global world of maths.

SEND and More Able Pupils
We fully include SEND pupils in the daily maths lesson so that they benefit from the emphasis on oral and mental work and by listening and participating with other children in demonstrating and explaining their methods.

Where necessary, teachers will draw up additional targets for a child, in conjunction with SEND Co. to include a specific mathematical target, in line with research indicating this as best practice where appropriate.

When planning, the teacher provides for the pupil's needs, both SEND and more able pupils by modified tasks and/or the support/extension provision provided by the teacher or a teaching assistant.

Children, in nearly all cases, will be taught with their own class and more able children will be extended through differentiated work, and application to more challenging problem-solving contexts.

Health and Safety

As expected in all areas in school resources are to be used safely.
The health and safety of pupils, staff and visitors is paramount.

Role of the Mathematics Leader

As mathematics Manager, the person will be responsible for the development, guidance, enthusiasm and promotion of Mathematics throughout Walbottle Village Primary School.

These responsibilities will include:

- To advise the Head teacher and Local Advisory Board on current and new developments of Mathematics at Walbottle Village Primary School.
- To plan, write and keep under review policy documents/guidelines which will incorporate the requirements of the National Curriculum.
- To prepare and review the implementation of the Development Plan for Mathematics, as part of the School Development Plan.
- To be responsible for the implementation of the policy documents and to monitor (linked to the schools long term monitoring plan) the development of Mathematics throughout the school, with particular regard to continuity, achievement and progression as well as challenge and accessibility for all our pupils.
- To evaluate continuity, breadth, achievement and progression across the whole school by monitoring the teachers' long-term planning and pupils' work to ensure that appropriate learning outcomes and activities are planned.
- To analyse and respond to pupil data analysis on mathematical progress, including targets.
- To observe and support in the classroom in the area of Mathematics (as time allows).
- To liaise with and advise colleagues in the field of Mathematics, including S.E.N.Co, Governors or newly appointed staff.
- To plan and lead learning opportunities, alongside consultants and inspirational professionals to strengthen our teaching and learning practice with creative and memorable mathematical outcomes.
- To control, evaluate and requisition equipment as required for the implementation of policy documents.
- To drive enthusiasm and understanding in Mathematics with all members of the School both in and beyond the classroom situation.
- To keep up to date with current developments in the field of Mathematics in primary education through reading, courses, visits, research, internet etc.

- To encourage and foster equal opportunities for all children in the field of Mathematics.

Numeracy Coordinator

October 2024