

Waterloo Primary School



Maths Intent Statement

We deliver a high quality Maths curriculum, which covers all requirements of the National Curriculum. Our curriculum develops understanding that Maths is essential to everyday life; critical to science, technology and engineering through a carefully designed curriculum that makes relevant links across the curriculum. The application of Maths throughout the curriculum, provides opportunities for learning to be transferred and embedded so that children are able to use their mathematical skills and knowledge confidently in their lives in a range of different contexts. Through extensive and ongoing work with the North West 3 Maths Hub, our discrete, bespoke Maths curriculum has been designed to ensure that children from Nursery to Year 6 develop appropriate subject knowledge, skills and understanding in addition to an appreciation of the beauty and power of mathematics and a sense of enjoyment and curiosity about the subject. We recognise that the earliest experiences create the foundations to become a successful and confident mathematician and provide opportunities for our pupils to develop a secure understanding of basic skills, number and calculation through the Mastering Number programme in Reception, Year 1, Year 2, Year 4 and Year 5. Our curriculum supports all children to succeed and make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competency in solving increasingly sophisticated problems. As a result, children develop greater knowledge, embed and retain that knowledge and develop greater depth and understanding of concepts to help them reach and exceed their potential at Waterloo Primary School and beyond.

Using correct mathematical language is crucial for thinking, learning and communicating mathematically. Children are introduced to the appropriate vocabulary at a time when it is relevant and required. Vocabulary is prioritised across the curriculum with opportunities for the teaching of new vocabulary, also applying and revisiting already acquired vocabulary, both in school and at home through the Mastering Number Parent Project in EYFS, Year 1 and Year 2.

Opportunities to develop SMSC understanding and to promote British Values are embedded within Maths lessons. Children are encouraged to question, explore and investigate problems to develop their curiosity and develop their creativity within Maths. Through thoughtful lesson planning, tasks and questioning, learning is scaffolded and support is provided to lower attaining pupils whilst challenging higher attaining pupils to allow all pupils to access learning, progress and develop a deeper understanding. Children are given opportunities to work collaboratively and to communicate their ideas, methods and findings in a range of different ways. They are encouraged to share their ideas and methodologies and respect, understand and celebrate the different approaches and methods. Problem solving skills are

developed alongside resilience as teachers and pupils reflect upon their findings and consider improvements and limitations to their methods.

Vision:

To cultivate an enjoyment of Maths in all children. To broaden their knowledge and understanding of how mathematics is used in the wider world in addition to the creativity and possibilities within the subject. To inspire curiosity where children of all differing starting points ask questions, express ideas fluently and talk about the subject using mathematical language. For every child to develop confidence in their fluent application of number to reason and solve problems within a range of contexts. For all children to finish the primary phase of their education with basic mathematical knowledge and other skills developed through Maths that will support them in Key Stage 3 and beyond.

Aims

The national curriculum for mathematics aims to ensure that all pupils:

- 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
- can 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

Curriculum Design:

In Nursery:

The principle focus of mathematics teaching in Nursery is to create a stimulating and engaging environment which provides the children with opportunities to develop and love and understanding of numbers 1- 5 and begin to explore the numbers 6-10.

The development of language within the children's earliest mathematics experiences is central to the Maths curriculum in EYFS.

Through songs, play and carefully cultivated experiences Children will confidently subitise, count and compare numbers up to 5. The children will be introduced to the numbers 6 – 10.

In Reception:

Children will subitise confidently with numbers up to 5. Children count reliably with numbers from 1 to 100. They focus on developing a deeper understanding of the numbers 1- 10 and place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.

Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.

(Statutory Framework for the early years and foundation stage 2017)

Key Stage 1:

The principal focus of mathematics teaching in key stage 1 is developing mental fluency with whole numbers, counting and place value up to 100 using numerals, words and the 4 operations, including with practical resources [for example, concrete objects and measuring tools]. By the end of year 2, pupils should know the number bonds to 20.

Pupils will develop their ability to recognise, describe, draw, compare and sort different regular and irregular shapes and use the related vocabulary. Children will use a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

Pupils will read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1. (Department for Education 2014)

Lower Key Stage 2:

The principal focus of mathematics teaching in lower key stage 2 is developing fluency with whole numbers and the 4 operations, including number facts and the concept of place value up to 10,000. Pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

Pupils will develop their ability to solve a range of problems, including problems with simple fractions and decimal place value using tenths and hundredths. Pupils will draw with increasing accuracy and develop mathematical reasoning so they can analyse regular and irregular shapes and their properties, and confidently describe the relationships between them. Pupils will use measuring instruments related to length, mass, capacity/volume, time with accuracy and make connections between measure and number.

By the end of year 4, pupils will have memorised their multiplication tables up to and including the 12 multiplication tables and show precision and fluency in their work.

Pupils will read and spell mathematical vocabulary correctly and confidently, using their growing word-reading knowledge and their knowledge of spelling. (Department for Education 2014)

Upper Key Stage 2:

The principal focus of mathematics teaching in upper key stage 2 is developing the understanding of the number system and place value to include larger integers up to 10,000,000 and decimals including, tenths, hundredths and thousandths. Pupils will develop and make connections between multiplication and division, with fractions, decimals, percentages and ratio. Pupils develop their ability to solve a wider range of problems using efficient written and mental methods of calculation. By the end of year 6, pupils use written methods for all 4 operations, including long multiplication and long division. In Year 6, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures consolidates and extends knowledge developed in number through measures and geometry topics such as: conversions of measures, area and perimeter, volume, length, mass, money and further exploration of angles including opposite angles, angles around a point and interior angles. Pupils classify shapes with increasingly complex geometric properties through exploring properties of rectangles, circles and investigating regular and irregular polygons and learn the vocabulary they need to describe them.

Pupils read, spell and pronounce mathematical vocabulary correctly.

(Department for Education 2014)

Year 1 - 6:

Parents are kept up to date with expectations in order to support learning at home. Our whole school curriculum overview and suggested activities/sites are made available on our school website. Vocabulary is developed from the NCETM Curriculum Prioritisation. Each year group completes retrieval tasks to enable children to revisit, embed and build upon previous knowledge and has a focus basic skills at least 3 times a week to improve fluency and raise levels of attainment for all

including lower attaining and SEND pupils. Opportunities to develop SMSC and British Values are embedded within lessons where possible.

Equal Opportunities:

To create an inclusive Maths curriculum, lessons adopt a mastery approach and are designed using small coherent steps and to provide opportunities to develop understanding using concrete and pictorial representations and variation. This in addition with carefully considered questioning, scaffolds the learning for lower attaining children while extending the learning for higher attaining children and those who are most confident within a lesson.

Keep up intervention through immediate verbal feedback or written feedback and child response (purple pen) before the start of the next lesson is the preferred method of intervention.

Lessons are visual and practical to support all levels of ability and EAL learners. Learners with EAL, are also supported by our EAL support assistant who pre-teach topics, address misconceptions and help to embed understanding of key vocabulary.

Teaching supports our disadvantaged learners through ensuring that lessons are inclusive and accessible through the use of carefully selected visuals and resources. This ensures that every child, unless they are working significantly below age related expectation, will access the same learning. The Maths curriculum provides opportunities to teach, revisit, apply and embed understanding both in school and at home. Children are provided with opportunities to complete online homework in Homework Club in school.

Learning Environment:

All classrooms have:

- Key vocabulary relevant in that year group is displayed in classrooms and updated to match the current topic.
- A number line displaying the range of numbers relevant to that year group. #
- A help desk which provides extra visual support relevant to that year group e.g. times table grids, number lines.
- Each year group has access to practical equipment that teachers and children can use including, dienes, Cuisenaire rods, Numicon, shapes, multilink. Children are encouraged to independently use the equipment that is available; sometimes it will be provided or directed if that equipment is the best representation for that maths concept.

Assessment and Tracking:

Alongside ongoing observations, questioning and marking of recorded tasks, end of topic assessment tasks are available for each topic. Planned assessment tasks are used at the end of every term and a scaled score out of 100 for Expected or 120 for Greater Depth is given. Year 6 may have extra planned assessment tasks to support directed intervention and prepare children for end of year assessments. This information is used to support teacher judgements in the tracking of pupil progress and attainment using Target Tracker. This system provides teachers with any gaps in prior learning.

Adaptive Teaching:

At Waterloo Primary School, we ensure that we maximise learning opportunities for all by using adaptive teaching.

At Waterloo Primary School, we ensure that we maximise learning opportunities for all. Adaptive teaching means lessons and tasks are appropriate for all pupils and they can access and be successful in their learning. All children receive high quality teaching and reasonable adjustments are made to resources and approaches.

In English, this may take the form of:

- Breaking down content into smaller chunks/steps
- Showing examples of a 'finished product', i.e., WAGOLLs (what a good one looks like) but with 'deconstructions' to explicitly show how they can get there.
- Scaffolding and modelling, using a 'thinking out loud' technique
- Pre-teaching and pre-reading vocabulary
- Varying levels of support
- Removing unnecessary expositions (unnecessary language)
- Use of concrete resources
- Alternative methods of recording
- Adapted physical resources (keyboards, pencil grips, scissors, larger spaces to record...)
- Reframing questions
- Putting key points in bold or making them more visible in a different way
- Intervening appropriately
- Flexible groupings
- Make connections to previous learning and supporting children to remember more through various strategies through quizzes, mind maps
- Adapting thinking time to process information
- Use of visuals such as task planners, pictures and diagrams
- Extending tasks with more choice, freedom to select resources and open ended challenges
- Making sure feedback is both challenging and specific and that learners actually have time to process it and respond to it.

Seeking to understand pupils' differences, including their differing prior knowledge and experience and potential barriers to learning, is an essential part of teaching. Adapting teaching in a responsive way is likely to increase pupil success.

Where, despite adaptive teaching approaches, a pupil is working significantly below age related expectations, they may require a more bespoke and personalised curriculum in order to achieve success.

Monitoring and Evaluating:

Subject leadership time is given. During this time the implementation and impact of the curriculum is monitored through: lesson visits, learning walks, sharing of planning, teacher Interviews, pupil voice, sharing of pupil work and analysis of data. Extra monitoring time may be allocated to perform teaching observations and drop in observations.

This information is shared with The maths and is used to review, update and form action planning.

This policy is open to regular review, based on present practice and consultation with members of staff.

Policy written by: Tanasha Robinson

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