

 Maths Policy

‘Mathematics knows no races or geographic boundaries; for mathematics, the cultural world is one country.’

—–  [**David Hilbert, German mathematician.**](https://everydaypower.com/quotes-by-martin-luther-king-jr/)

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**Maths Policy – Weald Primary School**

# VISION STATEMENT

# Independence and self-confidence are viewed as the key drivers to a happy and productive life and these are nurtured sensitively through Character Education and the caring, positive relationships which underpin everything that we do at Weald. Children are encouraged to fulfil their potential through a broad and creative curriculum that meets the needs of all pupils.

**Introduction**

Mathematics involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shapes, spaces, and measures. (Statutory Framework for the Early Years, 2017)

Mathematics is a creative and highly inter–connected discipline that has been developed over

centuries, providing the solutions 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)

**Accountability**

This policy outlines the learning, teaching, organisation and management of Maths at Weald Primary School.

The implementation of this policy is the responsibility of all teaching staff. The responsibility for monitoring and review rests with the Maths co-ordinator.

The role of the **Maths Leadership Team** is to:

* Support colleagues in teaching the subject content and developing their skills in planning, teaching and assessing Maths.
* Update and oversee the audit of resources needed to deliver the curriculum.
* Monitor progression and evaluate the impact of the learning and teaching of Maths.
* Review regularly the curriculum content and pedagogy.
* Keep up to date with developments in the teaching and assessment of Maths.

# AIMS AND INTENT

# Become fluent in the fundamentals of mathematics 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.

# Solve problems by applying their mathematics to a variety of problems with increasing sophistication including breaking them down into a series of simpler steps and persevering in seeking solutions.

# Reason mathematically by following a line of enquiry, conjecturing relationships and generalisations and developing an argument, justification or proof using correct mathematical language and vocabulary.

The 3 aims of the National Curriculum: Fluency – Reasoning – Problem Solving - should be addressed in each sequence of learning.

# As a result, our pupils will:

# Be competent and confident in taking risks to apply mathematical knowledge, concepts and skills.

# Be able to solve problems, reason mathematically and think logically and systematically.

# Develop an understanding of the connectivity of patterns and relationships within mathematics.

# Be able to work independently and in cooperation with others and to develop personal qualities such as perseverance.

# To be able to use and apply mathematics across the curriculum and to understand the application of mathematics in real life contexts and scenarios.

# Implementation: Teaching and Learning

The teaching of Numeracy will be in line with the whole school teaching and learning policy; We believe that the vast majority of children can succeed in learning mathematics in line with national expectations.

* **It is achievable for all. We have high expectations and encourage a positive attitude towards mathematics in all pupils, creating learning experiences which develop children’s resilience and perseverance in the face of a challenge, in line with the school’s character values.**
* **The whole class is taught mathematics together, with the expectation that every child will master the key concept, whilst some will work more deeply on challenging tasks.**
* **Deep and sustainable learning – lessons are designed with careful small steps, questions and tasks in place.**
* **The ability to build on something that has already been sufficiently mastered pupils’ learning of concepts is seen as a continuum across the school.**
* **Conceptual and Procedural Fluency – teachers move mathematics from one context to another, using objects, pictorial representations, equations and word problems. There are high expectations for pupils to learn times tables and key number facts and have a true sense of number. They are encouraged to think whether their method is appropriate, reliable and efficient.**
* **Differentiation is in the form of the amount of time that pupils will spend using concrete resources or pictorial representations to grasp concepts. It will be seen through targeted questioning and the feedback and scaffolding individual pupils receive in class as they work through problems.**
* **Challenge through greater depth – teachers set tasks to deepen knowledge and improve reasoning skills within the objectives of their year group.**
* **The ability to reason about a concept and make connections – pupils are encouraged to make connections and spot patterns between different concepts.**
* **Precise mathematical language, often used in ‘stem sentences’, is used by teachers so that mathematical ideas are conveyed with clarity and precision.**
* **Sufficient time is spent on key concepts, to ensure that learning is well developed and deeply embedded before moving on.**
* **Problem Solving is central to apply their understanding.**

**Strategies for the Teaching of Maths**

**EYFS**

In early years a strong grounding in maths is essential so that all children develop the necessary building blocks to excel mathematically.

Children are taught to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built.

Identifying patterns around them is another key area in EYFS maths, they need to be confident in making patterns and seeing connections, they are given opportunities to talk out loud about what they have noticed, Identify the mathematical relationships and connections around them in the classroom, and outside in forest school.

 **Years 1 – Year 6**

Maths is taught using the Whiterose Scheme of learning which supports the teaching for mastery approach. Whiterose ensures progression in maths for all pupils from reception to year 6. It provides both long- and short-term planning which ensures that there is an appropriate balance and distribution of work across each term. Termly plans produced by White Rose Maths (‘Small Steps’) are documentations used to support this.

The daily maths lesson should last between 40 and 60 minutes in KS1 and 60 minutes in KS2.

* Each lesson will begin with a ‘Flashback 4’ to support retrieval practice in maths.
* Lessons are sharply focused with one new objective introduced at a time.
* Difficult points and potential misconceptions are identified in advance and strategies to address them planned. Key questions are planned, to challenge thinking and develop learning for all pupils.
* Teaching sequences will involve review of prior learning, teacher input and teacher led discussion interspersed with short tasks involving pupil-to-pupil discussion, independent work and challenges. Independent practice includes fluency practice, reasoning, problem solving and higher-order thinking activities.
* Contexts and representations are carefully chosen to develop reasoning skills and to
* help pupils link concrete ideas to abstract mathematical concepts.
* Repetition of key ideas are used. This helps to verbalise and embed mathematical ideas and provides pupils with a shared language to think about and communicate mathematics.
* Formative assessment is carried out throughout the lesson, the teacher regularly checks pupils’ knowledge and understanding and adjusts the lesson accordingly.

**Maths across the Curriculum:** The National Curriculum places high emphasis on the importance of making links across the curriculum. We plan for opportunities where maths will contribute to many other subject areas. Staff are given time at staff meetings to work in curriculum teams to ensure these links are being made. Examples of this include:

* **Computing:** computing enhances the teaching of mathematics as it is particularly useful for mathematical tasks e.g. position and direction. 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, so that children can understand concepts more quickly.
* **PSHE:** the teaching of mathematics supports the social development of our children through the way we expect them to work with each other in lessons. We group children so that they work together, and we give them the chance to discuss their ideas and results.

IMPACT / Assessment and monitoring

**Formative assessment**

At Weald the types of formative assessments used are as follows:

* Flashback 4 – revisit previous learning
* Verbal feedback – addressing misconceptions.
* Marking for feedback
* Key questions withing the lesson.
* Test style activities including those with reasoning answers.
* Pupil observations whilst solving activities.
* Plenary style questions
* Quick check routines like whiteboard held up or thumbs up.
* Book looks and sharing with other professionals.

**Summative assessment**

At Weald the types of summative assessments used are as follows:

* End of unit tests on Whiterose e.g., end of fraction unit test.
* End of term tests 3 times a year from Whiterose
* End of year tests including standard assessment tests in year 6 and optional SAT’s tests in other years.
* Moderation with other schools or external moderator
* Analysing and sharing data with governors.
* Pupil voice

Pupil voice is a great way to verify the ongoing formative assessment – can the children talk about what they have been studying. Do they enjoy the subject and how it is taught? What is their favourite part of part of Maths? Are you proud of the work you do in Maths? This could be done with a governor and can then inform how the subject is taught.

Except for reception all the above assessments should happen in all classes at Weald at different standards. Year 6 standard assessment tests are mandatory tests for that year, but we do use optional end of year tests to help inform learning in other years.

Assessment in maths is an ongoing process, it informs teachers of what a child knows and then support the planning of teaching thereafter. Summative tests help to inform any gaps in knowledge and help to inform end of year assessments and conversations with professionals and colleagues.

**Timestables**

Timestables are assessed formally at year 4 but monitored through practices and tests from year 1 to year 6. We use Timestable Rockstars to help assess and plan work throughout school.

**Monitoring and Evaluation**

The teaching and learning of Maths will be monitored through book looks, pupil interviews, analysis of assessment data, scrutiny of work samples and lesson observations, in line with the school development plan.

**Health and Safety**

This policy needs to be read alongside our Health and Safety Policy. Considering needs to be given to conducting appropriate Risk Assessments and ensuring the safeguarding of children and staff when planning and carrying out mathematical activities.

Inclusion

All children are entitled to the full range of activities and experiences in Numeracy. Children identified as having Special Educational Needs, or indeed, any child who experiences a learning difficulty, should receive positive encouragement. Moreover, children should be encouraged to understand other peoples’ viewpoints and interpretations.

We aim to ensure those children with Special Educational Needs receive appropriate support. To this end, we adhere to the Whole-School Policy on Special Educational Needs