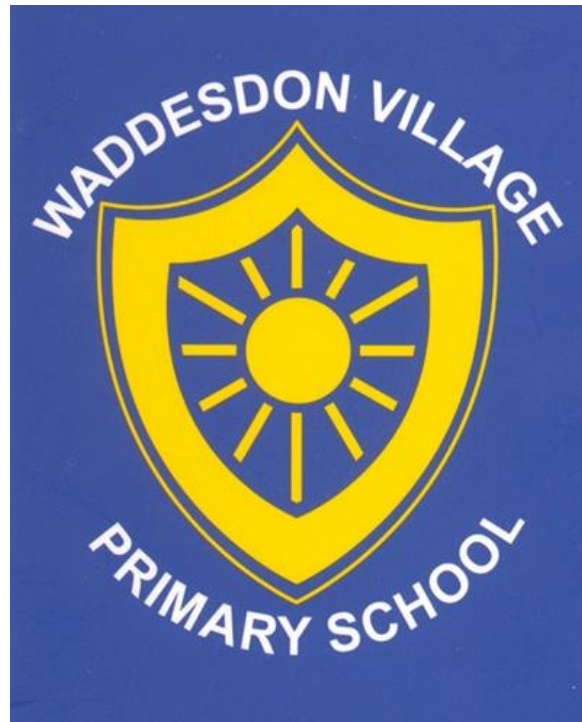


Maths Policy

Waddesdon Village Primary School – *a Pathway to Excellence*



Approved by: Laura Forchione

Date: September 2022

Last reviewed on: September 2024

**Next review due
by:** September 2025

1. Policy Statement

At Waddesdon Village Primary School we believe that a high quality mastery mathematics curriculum 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 and the world. This policy has been written taking into account the national curriculum, WVPS curriculum and the principles of a mastery curriculum, which are now endorsed by the DfE.

2. Aims

In their learning, we aim to inspire all children to reach their full academic potential. In mathematics this means ensuring a curriculum which 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 have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems
- **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.

Although the maths curriculum is organised into distinct strands, pupils are encouraged to make links and connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. As advised by the Department for Education (DfE) (in June 2020) pupils should fully master the core conceptual areas of mathematics, in order to be able to easily access and make links with other areas of the mathematic curriculum. At Waddesdon Village Primary School, we encourage pupils to take ownership of their own learning and challenge. **All** pupils should be given opportunities to be stretched and challenged through well planned practice tasks that offer a range of opportunities to master the curriculum. Pupils who have mastered a secure understanding should also be provided opportunities to show a greater depth of understanding through our 'Deeper Thinking' challenge questions or tasks. Wherever possible, they should also apply their mathematical knowledge to science and other subjects.

3. Statutory Requirements

EYFS

The principle focus for Mathematics in early years foundation stage 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 measure. Learning opportunities must consider the individual needs, interests, and stage of development of each child and follow the four guiding principles which should shape early years settings:

- Every child is a unique child, who is constantly learning and can be resilient, capable, confident and self-assured
- Children learn to be strong and independent through positive relationships

- Children learn and develop well in enabling environments, in which their experiences respond to their individual needs and there is a strong partnership between practitioners and parents and/or carers
- Children develop and learn in different ways and at different rates. The framework covers the education and care of all children in early years provision, including children with special educational needs and disabilities.

Key Stage 1

The principal focus of mastery mathematics teaching in key stage 1 is to ensure that pupils master mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations. Fluency questions should be presented in a variety of different ways (varied fluency) and contexts, in order for pupils to make links with other conceptual areas in mathematics. Pupils should be given opportunities to apply learning to word and reasoning problems as part of their daily lessons. Pupils will use concrete resources and pictorials to represent number and calculations in a variety of different ways to secure their conceptual understanding of the core areas of mathematics.

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. They should also be able to use 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 have mastered their number bonds to 100, their 2, 5 and 10 times tables and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Lower Key Stage 2

The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils continue to master and become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. Pupils will continue to be provided with questions that are presented in a variety of different ways (varied fluency) and contexts, in order for pupils to make links with other conceptual areas in mathematics and the real world. Pupils should be given opportunities to apply learning to word and reasoning problems as part of their daily lessons. Pupils will use concrete resources and pictorial representations to continue to master the conceptual understanding of the core areas of mathematics. Alongside this, pupils will further develop their process understanding and will move towards using more efficient written and mental methods to 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. They should also be able to draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. They should 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. In June each year, all year 4 pupils nationally will take part in a multiplication check test.

Upper Key Stage 2

The principal focus of mastery mathematics teaching in upper key stage 2 is to ensure that pupils extend and master 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. Pupils will continue to be provided with questions that are presented in a variety of different ways

(varied fluency) and contexts, in order for pupils to make links with other conceptual areas in mathematics and the real world. Pupils should continue to be given opportunities to apply learning to word and reasoning problems as part of their daily lessons. Pupils will use concrete resources and pictorial representations to continue to master the conceptual understanding of the core areas of mathematics. Alongside this, pupils will further develop their process understanding and will move towards using increasingly formal written methods to perform calculations accurately with increasingly large whole numbers, decimal numbers and fractions.

At this stage, pupils are also introduced to the language of algebra as a means for solving a variety of problems with unknowns. Their knowledge of number is consolidated and extended in geometry and measures and pupils also learn the vocabulary needed to describe and classify shapes with increasingly complex properties.

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

At all stages (including EYFS) pupils will follow a mastery curriculum through applying their learning to a range of different contexts, explaining and justifying their reasoning and may be given opportunities to demonstrate mastery at greater depth by solving more abstract problems through our 'Deeper Thinking' questions/tasks. All pupils across all stages will be exposed to higher level mathematical vocabulary, which will be developed and built on as pupils move through the curriculum. Pupils will be provided with sentence stems to model the use of this language and will progress to using correct mathematical vocabulary in their reasoning.

4. Teaching and Learning

Children's learning is supported through a variety of teacher led input, adult supported group work and independent practice activities. Teaching and learning follows the mastery approach to teaching mathematics which includes:

- Small step planning
- Episodic teaching
- Differentiation through scaffolding and deepening
- Mathematical language
- The Concrete Pictorial Abstract (CPA) approach
- Early intervention

Small step planning:

The mastery approach to teaching mathematics focuses on small step planning to ensure that all pupils grasp concepts in small steps before progressing. Through this approach pupils gain an in-depth conceptual understanding which is steadily built upon. Lessons will include carefully planned questions which focus on varied fluency, problem solving and explaining reasoning.

Episodic teaching:

Pupils are taught through whole-class interactive teaching, which goes backwards and forwards from teacher to pupils. This means **all** pupils are working together on the same lesson content at the same time and ensures that all can master concepts before moving to the next part of the curriculum sequence, allowing no pupil to be left behind. Lessons are pitched high and all pupils have opportunities to access fluency and problem solving questions, as well as opportunities to explain their reasoning.

Differentiation through scaffolding and deepening:

Through a mastery approach to teaching mathematics all pupils are working on the same lesson content/concept throughout the lesson. Lessons are pitched high (challenging) and extra scaffolded support is put in to place to ensure lower ability pupils can access the lesson content and master the curriculum in-line with their peers. Pupils who show a secure understanding of concepts taught should be offered opportunities to show mastery at greater depth through the schools deeper thinking questions or tasks.

Mathematical language:

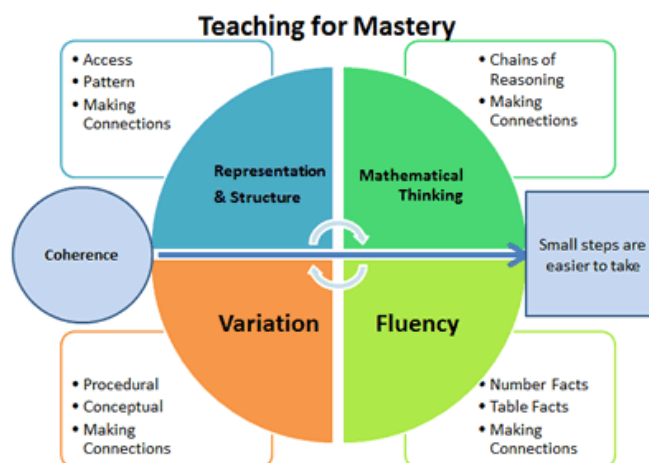
All pupils are exposed to higher level mathematical language. Pupils from EYFS up to Year 6 learn the correct mathematical terminology for taught concepts. Sentence stems are used to model use of mathematical language as well secure conceptual understanding. Pupils are encouraged to answer and explain reasoning in full sentences using correct terminology. Mathematical vocabulary is recapped at the start of most lessons.

The CPA approach:

Throughout Waddesdon Village Primary School's mastery curriculum, pupils will be exposed to and use a variety of different concrete and pictorial representations in order to support pupils conceptual and procedural understanding in mathematics. Pupils steadily progress to more abstract representations, including formal written methods.

Early intervention:

Waddesdon Village Primary School uses live marking and support to quickly identify if a pupil fails to grasp a concept or procedure. This quick identification means that gaps can be plugged immediately within the lesson or through early intervention to ensure pupils are ready to move forward with the whole class in the next lesson.



At Waddesdon Village Primary School we believe that it is vital that pupils have a secure knowledge of their times tables. Pupils are encouraged to practice their times tables at least 3 times a week at home on 'Times Tables Rock Stars' (TTRS) from Year 3-6 and in Year 2 from the spring term. Pupils will take part in regular TTRS paper tests which will be tracked by the Class Teacher and Assessment/Maths Leader as well as being taught strategies to remember them in everyday maths lessons e.g spotting patterns, the rule of doubles etc. Further times

tables interventions should be planned by teachers to ensure that all pupils are fluent in their times tables.

5. Planning

It is the responsibility of the class teacher to plan and deliver a full mastery curriculum which provides opportunities for all pupils to master mathematical concepts, before moving on to new content and is appropriate to their year group:

Planning is based on:

- EYFS Framework
- National Curriculum/ WVPS curriculum
- NCTEM Prioritisation Curriculum, supplemented where indicated by stand alone White Rose units
- A range of planning resources.

The long term plan and school overview is created using the 'NCTEM Mastery Curriculum' which is at time supplemented by 'White Rose' units of work or resources. Medium term plans are taken from the NCTEM units (White Rose units where specified) which teachers then use to create their weekly small step planning. This plan will include: A clear pathway of learning through learning objectives and steps for success; examples of CPA representations; episodic sequence of teaching and learning; practice tasks that are varied and provide opportunities to problem solve and explain reasoning and details of how lessons will be scaffolded and deepened. Plans should include adult support direction as well as specify support for Pupil Premium pupils and SEN pupils.

6. Cross-curricular Work

Mathematics contributes to learning across the curriculum in the following areas: key skills, spiritual, moral, social and cultural, thinking skills, financial capability, enterprise and work-related learning. These areas are addressed throughout our planning and teaching in a variety of ways i.e. we seek to take advantage of multicultural aspects of mathematics by exploring Islamic patterns in RE. Mathematics contributes in a major way to the key skills of communication, application of number, ICT, working with others, improving own learning and performance and problem solving. Cross-curricular STEM activities are encouraged across the school, with links being made on a regular basis.

6.1 ICT, Calculators and other resources

The new National Curriculum no longer tests competence in using calculators at the end of year 6. However, we continue to ensure that pupils know how to use them, and set tasks that enable them to learn when their use would be most appropriate.

Mathematics contributes greatly to the development of ICT skills and competencies. In KS1 children use bee-bots to develop their understanding of position; in KS2 they learn how to use spreadsheets in handling data and logo in measures, shape, and space. Other software such as 'Purple Mash' allows pupils to use number to code app or design their own computer games.

7. Inclusion

The school aims to provide a broad and balanced education for all children so that they achieve as highly as they can in Maths according to their individual abilities. Through our Maths teaching we provide learning opportunities that enable all pupils with special

educational needs, those with disabilities, those with special gifts and talents, and those learning English as an additional language, and we take all reasonable steps to achieve this through scaffolding learning or through offering all pupils the opportunity to think deeply about mathematics.

7.1 SEN

Through on-going formative and summative assessments, the class teacher identifies children who need support with Maths skills at the earliest possible stage. Within the classroom, the teacher identifies children with difficulties and attempts to address them by scaffolding learning activities or through early intervention. Where a child has a greater need the class teacher and the SEN co-ordinator work closely together to further support the child.

7.2 More Able

More able children are also identified and provided with opportunities to show mastery at greater depth by being provided with challenging 'Deeper Thinking' questions or tasks linked to whole class learning.

7.3 EAL

EAL pupils' needs are identified by the class teacher and addressed both within the class, as far as possible, and through individual small group support.

7.4 Pupil Premium

PP pupils' barriers to learning are identified by the class teacher and PP leader. Provision for PP children should be made clear on weekly planning and where timetabled they will be further supported by a PP teaching assistant.

8. Equal Opportunities

At Waddesdon, we are committed to equality of opportunity. All pupils will have equal opportunity to reach their full potential across the Maths curriculum regardless of their race, gender, cultural background, ability or any physical or sensory disability.

9. Assessment

Assessment for Learning (AFL) is regarded as an integral part of teaching and learning and is a continuous process which is shared with all learners. All class teachers are committed to raising standards of attainment through AFL and are responsible for the assessment of all pupils in their class.

Information for assessment is gathered in a variety of ways:

- * Talking to the children
- * Observing and live marking of work
- * Self and peer assessment
- * Cold and hot tasks - targets set
- * Termly tests (Y2- Y6)
- * Times tables tests
- * Statutory tests and Teacher Assessment

In each lesson pupils record or stick in the learning objective and self-assess against it at the end of the lesson.

At the beginning of each unit teachers will plan a cold task for all pupils to complete. Teachers will use this to set a personalised target for each child and to inform their planning

and pitch of lessons. At the end of the unit this will be followed by a hot task which will allow teachers and pupils to see progress throughout the unit or if further support is required.

Teachers should regularly be up-dating their teacher assessments against the Waddesdon Village Primary School threshold concepts and use this to inform their formal termly point in time assessments in maths.

10. Home Learning

At the beginning of each half term pupils in Key Stage 2 will be given a choice of homework tasks to pick from. Children pick one task per week. This will predominantly be a maths or English

Numbots and TTRS on-line platform:

- Pupils in Years 2-4 (Year 2 to start in Spring term) practice their times tables through TTRS at least 3 times per week.
- Pupils in Years 5 and 6 can continue to practice their times tables through TTRS as an optional home learning activity. Teachers may encourage pupils who are not yet secure rapidly recalling their multiplication facts to continue to practice.
- (Optional) Numbots is a platform aimed at KS1 to support pupils in learning their key number facts. Teachers in KS2 may continue to encourage pupils to use this platform if they are not secure with recalling their number facts by this stage.

For specific details on homework please see the Home Learning policy.

11. Role of Subject Leader

The Subject Leader is responsible for raising standards of teaching and learning in Maths through:

- Following the monitoring and evaluation timetable, which includes book looks, monitoring of planning, data analysis and learning walks/observations.
- Identifying areas of strength and areas for development which will feed into the SDP and subject action plan.
- Leading in policy development.
- Keeping up to date with recent Maths developments, particularly in teaching for mastery.
- Auditing CPD needs and supporting colleagues in their CPD.
- Auditing, purchasing and organising resources.

12. Role of the Governing Body

Initiatives are discussed with the Governing Body and regular meetings take place on the progress of Maths provision with the Maths Leader and Maths Governor. The Governing Body ensure the implementation of the Early Years Foundation Stage Framework and the National Curriculum and review the Maths policy regularly.

13. Involvement of Parents/Carers

We believe that parents have a fundamental role to play in helping children to learn in Maths. In order to promote this, we:

- Set home learning to promote the support of in-class learning.
- Offer guidance to parents, in the form of letters/leaflets and areas on the school website about how they can support their children.
- Hold curriculum open sessions to explain relevant developments or strategies in supporting Maths.

- Encourage parents with jobs which involve maths to share their expertise.
- Hold parents' evenings twice a year to discuss children's progress.
- Send an annual report to parents in which we explain progress made by each child and indicate how the child can develop their learning.

14. Policy review

This policy was written by the Maths Leader in consultation with staff.

It was adopted by the Headteacher in September 2020

It was reviewed in September 2024 to include any whole school updates or changes linked to maths

It is due for review September 2025.