Maths Policy

Unity
Trust
Courage
Curiosity
Respect
Kindness

A community for learning. Raising expectations. Fulfilling high standards.

Policy Revised: **October 2025**
Policy Review Date: **October 2026**
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Widmer End Community Combined School & Pre-School

Maths Policy

Contents

1. Introduction

Mathematics is a universal language. It is a way of communicating, being used to describe, to illustrate, to interpret, to predict and to explain. It is a creative subject in which pupils have the chance to explore for themselves, and to create beautiful and elegant objects, patterns and arguments. It develops the essential numerical skills that enable pupils to understand and communicate with the modern technological world, the ability to think in abstract ways and solve problems. Different cultures have contributed to the development and application of mathematics and the subject transcends cultural boundaries.

Mathematics provides the chance to prove beyond doubt, using logical argument.

2. National Developments

This policy has been written taking into account the Programme of Study for Mathematics 2014 and the framework for mathematics.

3. Aims

At Widmer End C C School we recognise that all pupils know a lot of mathematics, whatever their stage of schooling. We aim, in mathematics, to enable pupils to:

- learn the facts and techniques that they will need to study the subject further and for everyday life
- to think logically - to prove
- solve problems using the most appropriate method
- reach the highest standard possible and to think for themselves within the subject
- be creative and imaginative, to appreciate the power and beauty of mathematics
- be confident to talk about their work
- be confident to work mentally and fluently
- have good numeracy skills
- use mathematics as a tool in cross-curricular work
- use and apply ICT as a part of mathematical study.

4. Organisation

We teach mathematics through units of work, in line with the statutory maths curriculum. To ensure complete coverage of National Curriculum objectives and clear progression, year on year, we follow the Power Maths White Rose programme of learning.

There is a mathematics lesson every day, each lesson is one full hour. The year's overview for each year group shows how we divide this between units and areas of the programmes of study.

5. Teaching

Following the mastery approach, the format and structure of our lessons enables all children to develop their understanding at a pace suited to them. Additional resources, scaffolding and support are available within the classroom setting to support children where required and is adaptive and responsive to children's daily successes and challenges. This ensures all children are given the best opportunities to consolidate and extend their learning each and every day.

Each day pupils will receive some whole-class or group teaching. We lay great emphasis on pupils talking about their mathematics to learn by; articulating their thoughts; listening to the views of other people; and from the teacher discussing their thinking.

Each lesson is divided into evidence-based sections. Lessons are interactive with children working independently, in pairs, in groups and as a class.

Lessons begin with a retrieval fluency task to retrieve and therefore sustain prior learning, consolidate number facts to give children confidence that they are making progress..

Next, children share, explore and learn from a 'discover' problem, presented with some focused questions to guide their thinking.

After that, children discuss their learning through a shared activity. During this whole-class, interactive learning phase, children share their thinking and look for the best ways to solve the problem.

Each lesson then moves into a further collaborative section which begins with a teacher-guided question followed by a problem for children to solve in collaboration with a partner, and finally an independent question. It develops the concrete problem through the pictorial and abstract stages and there is clear progression within

each lesson.

Next, children begin to apply and rehearse what they've learned. Carefully varied questions help children to understand the essential features of each concept and build their fluency. Classes will always provide further challenge questions that link to other maths areas, too.

Finally, children will reflect on the lesson bringing the lesson to a conclusion. This is completed by all pupils at the end of each lesson, regardless of whether they have answered all of the questions.

Lessons will be delivered primarily through the schools Power Maths White Rose scheme but, at each teacher's discretion, will be supplemented with other learning methods and resources, such as Nrich, materials from the NCETM and Maths games online, to ensure complete consolidation and fluency of skills.

The mastery approach ensures children develop:

- fluency 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
- Skills to reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- An ability to 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.' (National curriculum page 3)

6. Maths Meetings

Maths Meetings are a vital part of the Mathematics Mastery programme.
They consolidate learning outside of the core maths lesson and provide a fun way for pupils to practise applying their knowledge and skills on a regular basis, helping to continually build on their mastery of key concepts.
Maths Meetings will provide crucial additional support providing opportunities to cover areas of potential lost learning as they will help to:

- support areas of the curriculum where pupils may have forgotten key maths concepts
- consolidate learning and help highlight areas where pupils may have any misconceptions
- provide extra time in the day for maths and an opportunity to revisit and practise key skills

These meetings will occur every day of the week, will last for no more than 15 minutes and will cover prior

learning in 8 short, sharp interactive sections. There is no requirement for learning to be recorded from these sessions.

Each session will be progressive, showing the development between year groups and follow the specific areas laid out in the Maths Meeting documents shared with class teachers.

7. Arithmetic

Arithmetic sessions aim to build pupils' fluency and mental recall of number facts, calculations and fractions. These sessions occur once a week and provide regular practice for pupils, aiming to build confidence when answering age-related arithmetic style questions. Arithmetic sessions last for 30 minutes and answers are recorded in the back of Maths books in KS2 and on whiteboards for KS1.

8. Formal written calculation methods

It is important that pupils experience a consistency of approach in developing formal written methods for calculating.

9. Strategies for ensuring Progress and Continuity – Planning

Long Term plans

- Curriculum Overview - what should be taught when and how it links to other year groups

Medium Term plans

- termly or half termly outlines off units of work (block planning) and main teaching objectives and the timescale of teaching them

Short Term Plans

- weekly - using a common format, stating learning objectives, groupings, differentiation, support and activities
- daily evaluation should take place and, if necessary, lessons modified accordingly. Use the "traffic light system" for daily assessment.

Most resources are kept in classrooms, accessible to pupils. We teach pupils how to use them and recognise that we need to teach them to make appropriate choices of equipment. Manipulatives are readily available for all

pupils every lesson and form the concrete part of each lesson.

9. Assessment

There are several aspects to assessing numeracy, these are:

Formative assessment

- Live feedback to a number of children every lesson, every day
- Marking and discussing pupil's individual work – daily.
- Small group settings to assess and review work

Summative assessments

- **Individual target setting** will take place with pupils during the course of each term. This could take place outside of the maths lessons though time is planned each half term to assess and review.
- **Evaluation of medium and short term plans -** teachers will evaluate coverage and consolidation of daily and termly plans and deliver adapted teaching daily and termly in response to their evaluations.
- **Assessment against National Curriculum objectives -** Children's levels are recorded 3 times a year and form the basis of progress meetings with the Senior leadership team, and teacher. Throughout the year, staff meet to review a sample of pupils' work from each class to ensure that judgements about levels are consistent. We currently use the PiXL assessment scheme.

We assess what pupils have done against what we hoped they would learn. This enables us to plan what they should do next. Assessment by standardised test and against National Curriculum levels follows school policy. We prepare pupils for the KS1 and 2 SATs (see school policy) so that they can achieve as well as possible. Each term we plan a formal review of the progress made by each pupil and use this to plan for the next term. Data from PiXL is used to inform planning and to form 'therapy' groups for pupils who may find areas of Maths tricky, needing further support.

10. Strategies for Recording and Reporting

Class Teachers keep clear records of pupils' achievements.

Each class undertakes specific assessment activities during assessment week each term, after which individual targets are set.

Reporting to parents is done through bi annual parent meetings and annually through a written report.

Reporting in mathematics will focus on each child's:

- attitudes to mathematics
- competence in basic skills
- ability to apply mathematical knowledge to new situations

11. Learning across the curriculum

Mathematics provides the key to understanding across many subjects. As teachers we will ensure that mathematics contributes to learning across the curriculum. Applying maths learning in the context of other subjects will enhance a deep understanding of where learning in a Maths lesson is applied in many contexts elsewhere. Each Maths lesson will begin with a 'Why are we doing this?' discussion to ensure children understand the purpose to their lesson - this is a key opportunity to link to other areas of the curriculum and real life maths experiences.

Mathematical skills are not limited to using numbers. Teachers will ensure children are frequently made aware of the multiple opportunities for numeracy across the curriculum:

- Organising information and working out how to present information (both important scientific skills);
- Spatial reasoning (which is important for subjects like PE and activities like dance)
- Aiming for accuracy (for example, when learning dates in history and using punctuation correctly in English)

Connections made will be relevant, as this will make the inclusion of numeracy more enjoyable and effective. Children will also be encouraged to consider the use of maths in their day to day lives ie; using money to pay for goods, telling the time, playing games (Monopoly or Chess), cooking and art activities.

12. Equal opportunities

All the mathematics we work on shows positive images of the various groups in society. We seek to celebrate the mathematical heritage of all the cultures in the school and to recognise that the mathematics we do comes from all over the world.

13. Marking and Self Assessment

Marking will be achieved through a variety of strategies including self-marking, peer marking, discussion in groups, and live feedback. The class teacher will monitor by work sampling any work not directly marked by them.

Teachers will highlight learning objectives using a traffic light scheme to show an objective has been secured or that more support needs to be given.
Green = secure
Yellow = developing
Red = requires more support

Children will also self assess their work to enable an immediate dialogue to commence, between teacher and student.

Children's self assessment

- This is an essential way for children to reflect on their learning and elicit more support where needed if not already provided with immediacy, within the lesson.

EYFS - yr3

- traffic light faces (either in their books or putting books in relevant boxes)
    - Green face = secure / I am confident
    - Yellow face = developing / I think I understand but want more practice
    - Red face = requires more support / I don't understand

KS2

- To complete the 'reflect' section of the 'Power Maths' Textbooks. This enables children to reflect on their learning from the session and allows the teacher to see if they have understood how to meet the objectives.

14. Special Educational Needs

In line with the school policy on Special Educational Needs, the SEN co-ordinator, mathematics co-ordinator and the class teacher will be involved in ensuring that pupils will have work planned to meet their needs. Classroom assistants will also provide additional support . Those pupils with significant needs in mathematics should have specific mathematical targets set when we produce their provision maps.

15. Resources

Each class has an appropriate range of mathematics equipment and resources. Some items are stored centrally in the Mathematics Cupboard and may be borrowed for particular areas of work and study.

16. Management of mathematics

The role of the Maths coordinator:

- teach demonstration lessons;
- ensure teachers are familiar with the framework and help them to plan lessons;
- lead by example in the way they teach in their own classroom;
- prepare, organise and lead INSET/ staff meetings with the support of the Headteacher
- work cooperatively with the SENCO;
- observe colleagues from time to time with a view to identifying the support they need;
- carry out work and planning scrutinies to ensure continuity and progression;
- attend INSET provided by LA maths consultants;
- discuss regularly with the headteacher and maths governor the progress of implementing the strategy in the school.

The role of the Maths Governor:

- to visit the school regularly to talk with the teachers and when possible, observe some of the daily mathematics lessons;
- to report back to the curriculum committee on a regular basis;
- to attend any relevant inset or training.

The role of the Headteacher:

- lead, manage and monitor the implementation of the framework, including monitoring teaching plans and the quality of teaching in the classrooms;
- with the Maths governor, keep the governing body informed about the progress of the framework;
- ensure that the mathematics remains a high profile in the school's development work;
- deploy staff to maximise support for the framework.