

## MATHEMATICS POLICY

Providing excellent teaching to allow pupils a fascination for learning and life is at the core of Mathematics learning at Cheddington Combined School. It is our belief that mathematics is a beautiful pattern of ideas that merge to form answers to – and to pose – questions. The true study of mathematics goes beyond getting the correct answer to a question posed. Rather, it is the experience of the journey to achieve a potential answer to a given question. We want the children to not only be answering questions but asking them too. For example: Why am I using a particular method? Is there a more economical method of calculation? and What is the true (or potential) meaning of the answer I have reached?

The pursuit of mathematical knowledge is not a solitary adventure. We encourage the children to work together as partners and to respectfully challenge answers and findings so that learning can be embedded. Inevitably, there will be incorrect answers, but we teach the children how to persevere in the face of errors and that to make an error is an ideal learning opportunity. All pupils in Key Stages 1 and 2 are taught to self-assess their learning based on explicit Learning Intentions which supports our aim to create self-reflective learners. This allows teachers to understand more the learning experience of the pupil and to adjust teaching if necessary.

Maths is a core subject that lies at the heart of so much of everyday life and it is our intent to make it accessible for all so that each child can thrive in the 21<sup>st</sup> century. We feel strongly that children should feel unafraid to take on a mathematical challenge and be comfortable in reviewing working strategies so that a successful outcome is achieved, and it is this that underpins all mathematical teaching at this school.

To assist us in these outcomes, the children are taught using a nationally recognised guidelines set out from White Rose Maths and key features of these are:

- High expectations for each child
- Learning follows 'Concrete – Pictorial – Abstract' procedures
- Strong concept of number and place value are priorities and underpin the majority of other mathematical learning
- Fluency precedes reasoning and problem solving and these principles are practised by everyone for at least ten minutes each day
- Ability to apply mathematical problem solving to everyday life
- Confidence with calculation – understanding why formal written methods work
- Discussion of methodology using key vocabulary to enhance reasoning skills.

In the Early Years and Foundation Stage (EYFS), the children are introduced to mathematics via a creative, play and discussion-based curriculum. The children work through The Five Counting Principles as set out by Gelman and Gallistel (1978) to ensure a deep understanding of number with which to proceed into Key Stage 1. The children work with shapes, becoming more familiar with key terminology to understand positional cues and to create repeated patterns. The concept of measures is introduced by discussing aspects of 'My Day' and relating this to the concept of time as well as looking at how to measure things using length, weight and capacity.

In Key Stage 1 (Years 1 & 2), the children build upon their learning in EYFS expanding their knowledge of number up to 100. Times tables are introduced alongside four operation work whereby the concepts of 'add', 'subtract', 'groups of' and 'sharing' are reinforced using manipulatives before progressing on to more abstract questioning. Statistics are used to group collected data and different methods of representation (pictogram and

block diagrams) are also introduced. Geometric knowledge is built upon using 2D knowledge and how this translates to 3D shapes as well as reflecting images along a line of symmetry. Through Key Stage 2 (Years 3, 4, 5 & 6), the children develop their place value knowledge to include larger numbers as well as decimal numbers. The rationale for formal written methods is reinforced for ease and speed of calculation, and this is referred back to on a regular basis to ensure learning of basic principles are embedded. Approximation and estimation is also introduced as a tool for checking accuracy of calculation. Statistical knowledge is enhanced by introducing a wider range of data representation/analysis and the reasoning behind the most appropriate methods. Geometric knowledge progresses from 2D and 3D representations to using mathematical implements (for example compasses and protractors) to construct shapes based on known facts.

Pupils in Key Stage 1 and 2 are additionally challenged with more formal application and reasoning learning using guided question stems (e.g. "I know..., therefore...", "Spot the pattern" and "True or false" among others). This challenges pupils to apply language skills to mathematical paradigms and supports embedded knowledge through technical (tier 3) vocabulary.

Early Years pupils develop mathematical enquiry, investigation and explorative skills through opportunities to explore the world around them through access to high quality continuous provision and Teacher led activities. Each subsequent year group is allocated five hours of taught lessons per week in Key Stage 1 and Key Stage 2.

For more detailed information on the Mathematics curriculum at Cheddington School, please see the Curriculum Grid and Mathematics Curriculum Milestones documents under the Curriculum: Mathematics section of the main school website.

The children are regularly assessed using standardised test measures (outcomes are compared to a large, national sample). We have three formal assessment points in mathematics throughout the year whereby the children's newly acquired knowledge is assessed alongside embedded learning from previous years. The children's progress is closely assessed using a combination of the summative outcomes and teacher-assessment (see also the Mathematics Curriculum Milestones document). Subsequent teaching is planned and delivered based on these outcomes. Should a pupil require additional learning to fully embed strategies and algorithms, the class teacher works collaboratively with other members of the team (e.g. support staff, Maths Manager, SENCo among others) to put this in place.

The role of the Maths Subject Manager is cyclic in nature. I monitor the training of the staff to ensure they are delivering the best possible maths education for the children. The aim is for the children to experience a positive learning environment whereby they are encouraged to take calculated risks to further their knowledge. This is shown in our test data and teacher assessment, which then informs staff training and the perceived maths experience for the pupils.

I hold EMU (Evaluation, Monitoring and Understanding) sessions termly for the pupils in Key Stage 1 and Key Stage 2 to gauge their experience of maths and to review recorded learning in books. This is a three-phase delivery process whereby I complete a traditional review of completed work in exercise books and review data from the previous assessment point. There is then a 'collapse' of the traditional year groups to allow a single delivery of subject matter which supports the creative and critical thought of the pupils. This also provides me with the voice of pupils' experience of Mathematics at school. After the lesson delivery, I reflect on the event with particular focus on:

1. The child's interaction with the task, the teacher and each other

2. Level of creative and critical thought
3. Learning behaviours observed which are interwoven with our school values (respect, teamwork, passion, determination and patience)
4. Next steps

During these sessions, I go beyond the curriculum and guide the children to see the beauty of maths and to understand that maths is everywhere (e.g, showing fractals, how maths appears in art, origami etc). In addition to the scheduled EMU sessions, I regularly review samples of children's work and conduct learning walks (observe teachers delivering maths lessons) to ensure the validity of teaching.

A large part of my role as Maths Manager is to identify and reduce evidence of 'Maths Anxiety' in the children and stakeholders where relevant. To address this, there is a regular Maths Newsletter published for the parent body to read and engage with alongside their children. Copies can be found on our website.

All of the above allow me to be an informed advocate for the subject, identify clear targets and success criteria for its development in line with changes to the required curriculum which lead to sequential deep learning for the children in all classes.

Policy reviewed: Autumn 2022

Date of next review: Autumn 2026