



*Through wisdom, compassion and endurance, we endeavour to make the best decisions possible
for our children*

MATHS POLICY

April 2020
Review: April 2022

Whaddon School

Maths Policy

Vision

Mathematics is all around us. Our role is to enable our children to see this and equip them with the skills and knowledge to reason and calculate mathematically, through a deepening understanding of the world around them. It is important that we develop an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject for every child. We believe the journey through the mathematics is more important than the answer, thereby placing a higher emphasis on problem-solving and reasoning, rather than achieving a correct answer and rushing on to another question.

Aims and Objectives

We aim to ensure all children...

- develop a secure understanding of the different areas of mathematics including: place value, addition & subtraction, multiplication & division, fractions, geometry, measurements and statistics.
- 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.
- can 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 nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Spiritual, Moral, Social and Cultural Development

Children will be given opportunities to explore and have a sense of enjoyment and fascination when learning about themselves, others and the world around them. They will be supported and challenged to use their imagination and creativity. They will have the opportunity to reflect on their own experiences and give constructive feedback to their peers.

Children are educated about sustainability and the impact upon the environment and those within it. They will be encouraged to appreciate and see the way the world around us is changing and that products must be adaptable and efficient to fulfil their purpose. They will work in different contexts including those from different religions, ethnic and socio-economic backgrounds. They will learn to appreciate the role of design technology in facilitating a world with opportunities for all regardless of disability or ability. Children will be taught about why it is important to be environmentally friendly and our responsibility to the world in which we live.

Teaching and Learning

Whaddon School has invested in fully establishing the Singapore Maths method through *Maths No Problem*. The Singapore maths method consistently tops the international benchmarking studies for maths teaching through a highly effective approach to teaching maths based on research and evidence which:

- Builds students' mathematical fluency without the need for rote learning
- Introduces new concepts using Bruner's Concrete Pictorial Abstract (CPA) approach
- Enables pupils to learn to think mathematically as opposed to reciting formulas they don't understand
- Teaches mental strategies to solve problems such as drawing a bar model

EYFS - In the Early Years Foundation Stage, maths is taught across two strands of the curriculum:

Number develops children's early understanding of numbers and calculation through practical experiences alongside exposure to symbols. They are working towards the Early Learning Goal: *Children estimate a number of objects and check quantities by counting up to 20. They solve practical problems that involve combining groups of 2, 5 or 10, or sharing into equal groups.*

Shape, Space and Measure develops children's understanding of simple shapes, using early mathematical language, identifying patterns and using measures in practical contexts. They are working towards the Early Learning Goal: *Children estimate, measure, weigh and compare and order objects and talk about properties, position and time.* Learning undertaken within Early Years is guided by the requirements and recommendations set out in the Early Years Foundation Stage document. We give all children ample opportunity to develop their understanding of mathematics and we aim to do this through varied activities that allow them to use, enjoy, explore, practise and talk confidently about different aspects of mathematics. Foundation Stage teachers base their teaching on objectives in the Framework for Reception; this ensures that they are working towards the 'Early Learning Goals for Mathematical Development.' Towards the end of Reception teachers aim to draw the elements of a daily mathematics lesson together so that by the time children move into Year 1 they are familiar with the format of a focused maths lesson.

Key Stage 1 - The principal focus of mathematics teaching in Key Stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This involves working with numerals, words and the four operations, including with practical resources. At this stage, pupils develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching also involves using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

Maths is taught daily from Year 1 using *Maths No Problem* materials, which extends the most able pupils within the year group to develop their mathematical skills to a mastery level, solving rich and varied problems.

Mastery

Whole class moves through content at the same pace: When teaching maths for mastery, the whole class moves through topics at broadly the same pace. Each topic is studied in depth and the teacher does not move to the next stage until all children demonstrate that they have a secure understanding of mathematical concepts.

Time to think deeply and talk about maths:

Students are given time to think deeply about the maths and really understand concepts at a relational level rather than as a set of rules or procedures. This slower pace leads to greater progress because it ensures that students are secure in their understanding and teachers don't need to revisit topics once they've been covered in depth. We recognise that verbalising their thinking supports children in exploring and clarifying their own ideas, ensuring they construct their understanding on solid foundations.

Builds self-confidence in learners:

In a traditional primary school maths lesson, children are put in different groups and given different content based on their anticipated ability. This means that from an early age, children are classed as those who can and can't "do maths". Teaching maths for mastery is different because it offers all pupils access to the full maths curriculum. We begin using 'low threshold, high ceiling' word problems to enable all children to

achieve at their own level, right at the very start of every lesson. This inclusive approach, and its emphasis on promoting multiple methods of solving a problem, builds self-confidence and resilience in pupils.

Differentiates through depth rather than acceleration:

Though the whole class goes through the same content at the same pace, there is still plenty of opportunity for differentiation. Unlike the old model, where advanced learners are accelerated through new content, those pupils who grasp concepts quickly are challenged with rich and sophisticated problems within the topic. Those children who are not sufficiently fluent are provided additional support to consolidate their understanding before moving on.

LOTG:

Wherever possible, the staff incorporate learning outside the classroom into their daily curriculum. Across all classes the staff are supported and encouraged to take learning beyond the four internal walls. (See LOTG Policy)

Resources

Child-led learning is enabled by ensuring learning areas are well resourced. Specific learning experiences are planned at the start of term jointly by the teacher and children; consumable resources need to be identified and a budget is set aside for this.

Staff are responsible for informing the Headteacher when resources run low or if new equipment is needed.

Equal Opportunities

The school is committed to a policy of equal opportunities for all pupils. All children should be allowed access to and given confidence in the different activities offered, regardless of their ability, gender, religion, or cultural/ethnic background.

The content of lessons and the resources available should ensure that all pupils are valued equally, are able to participate with enjoyment and are able to achieve qualities and standards appropriate to their age, experience and abilities.

Assessment

Assessment is an integral part of the teaching and learning process. The information which we gain from formative assessment in mathematics is used to inform future planning and differentiation, and to ensure that all pupils are making good progress. Summative teacher assessments are recorded for each child termly. Adults are expected to give verbal, in-the-moment feedback during lessons to ensure instant impact on the children's understanding and to identify those that need additional support or challenge, so this can be acted on the same day, while the learning is fresh and relevant. Children assess their own and each other's' learning as part of their development of Positive Learning Behaviours.

Monitoring and Review

The Subject Leader sets priorities for the development of maths in an action plan which forms part of the School Improvement Plan. Standards are monitored throughout the year and the action plan is annotated to reflect achievements and further development areas. A written report is produced (June) making judgements about standards, drawing on information from discussions with pupils and staff, lesson observations, looking at planning and evidence from work samples. This report is presented to the Curriculum Governors. The Subject Leader is responsible for achieving value for money with the allocated budget and has responsibility for meeting the training and professional development needs of staff.

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