

Mathematics Policy

September 2020

Tackley Church of England Primary School



Our vision for Tackley CE Primary School reflects our commitment to create a school where everyone is important and valued as members of our school and local community. This vision is achieved through our values of curiosity, kindness and responsibility.

These values help us to make good choices about how we lead our lives, and means that we all contribute to our enriched curriculum which places an importance on life beyond the classroom. In school we relate the importance of each individual as a valuable member of our community to the Parable of the Lost Sheep where everyone is included, and everyone is important and valued.

Aims & Intent:

At Tackley C of E Primary School, we believe that every child is entitled to a high-quality mathematics education, which will provide a foundation for them in understanding the world. As a result, they will have an appreciation of the beauty and power of mathematics, plus a sense of enjoyment and curiosity about the subject. It is our belief that our children should have a positive learning attitude modelled and:

- **be provided with a broad range of counting experiences** at an early stage of them developing a sense of number
- **learn about key early mathematics concepts and skills**, which need to be understood before they begin to calculate
- **develop a depth in understanding linked with calculation**, including mental maths strategies that can be associated with various structured models and images

We have adopted a mastery approach in the learning and teaching of mathematics. The main aim of such an approach, is that it values 'going deeper' to ensure that our children develop a secure knowledge of mathematical concepts. This enables those pupils beginning their education at school to be able to access age-appropriate ideas, as a result we do not see gaps open in their learning over time. Integral to this is the school's vision for mathematics which, '...rejects the idea that a large proportion of people 'just can't do maths,' [and aligns with the] 'belief that by working hard at maths they can succeed.'

NCETM – [*'The Essence of Maths Teaching for Mastery'*](#) (2016)

Despite having developed a mastery approach in the learning and teaching of mathematics, we are aware that some children will have gaps in their pre-requisite knowledge. Consequently, our medium-term planning has been designed to take into account individuals and groups of children where 'catch-up' is still required. Medium term planning also shows longer being spent on each topic as mastery is an integral part of the system, so that a broadening of knowledge and skills can take place as part of pupils' learning experiences.

As a result of this approach being taken, it is likely that those undertaking learning walks and/or monitoring lessons will see more whole-class teaching than may have been evident before the implementation of the 2014 National Curriculum. Pupils progress through curriculum content at broadly the same rate, although support/intervention and broader opportunities are provided to move groups of children on so that they are able to:

- Grasp concepts and methods, e.g. through more varied use of practical equipment – in the case of lower attainers
- Be challenged through exposure to greater depth in their learning, e.g. through tackling more complex problems in different contexts - in the case of higher attainers/rapid graspers

As a result, differentiation is sometimes likely to appear to be more subtle than before. Practise and consolidation play a central role in pupils' learning experiences. Although the 'pace' in lessons may appear to be slow, this could mask development of deep understanding of mathematical concepts through use of small-steps. Further challenge is provided to all children through use of problem solving, which may or may not be linked with a real-life context.

Implementation:

All of the above decisions taken in terms of curriculum design and learning/teaching are inextricably linked to necessary Continuing Professional Development (CPD) for teaching staff. School leaders ensure a range of CPD is made available for staff, which means that increasing consistency is gained across Years 1-6, whilst colleagues in Early Years are aware

about the mastery agenda and adopt relevant teaching strategies to support the development of practice.

In terms of assessment, and in order for the mastery approach to work, we understand the particular need for children to achieve key objectives for their current stage of learning. Such assessment links with day-to-day Assessment for Learning, which informs teachers about the elements of learning pupils need to develop further. In lessons, teachers use precise questioning to check conceptual and procedural knowledge. They formatively assess how misconceptions can be used as growth points in learning, whilst also diagnosing who requires intervention, meaning that all children are expected to 'keep up' rather than 'catch-up.' Assessment gathering is kept meaningful and is viewed as a diagnostic tool whereby collated information is used purposefully when planning pupils' next-steps.

Through their lessons, teachers aim to promote connections within and across National Curriculum domains, so that children are taken deeper with their learning over time and recognise the interconnectedness of concepts. It is also intended that pupils revisit concepts, for example, multiplication within area when presented as an array model, which means that pupils absorb learning within their long-term memory.

It should be noted that varied use of practical resources, structures and representations, plus questioning that requires deeper reasoning is used to ensure all children are supported/challenged appropriately. A progression in key representations and structures, leading to understanding of sometimes complex and abstract concepts, has been defined and is exemplified in the school's calculation policy. This in turn supports the delivery of consistent approaches and equity of access for learners.

Early Years Coverage & Organisation:

In order that our children get a broad and balanced mathematical curriculum, we will ensure that the following Early Learning Goals (ELG) can be achieved as a consequence of learning and teaching experiences that we provide:

ELG 11: Numbers: Children count reliably with numbers from 1 to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.

ELG 12: Shape, space and measures: Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.

By creating a number-rich learning environment, both indoors and outdoors, it is intended that children will be encouraged to engage with meaningful maths learning. This may follow adult-directed teaching or be stimulated by a curiosity in counting and/or calculating using a range of practical resources, including structured apparatus and the use of stories.

We also encourage problem-solving linked with the real-world, and understand that young children need problems:

- which they understand – in familiar contexts
- where the outcomes matter to them – even if imaginary
- where they have control of the process
- involving mathematics with which they are confident (Gifford, 2015)

Impact

The attainment and progress of pupils' learning is tracked by class teachers and senior leaders, so that swift interventions can be put into place, including for children who have not always experienced a mastery approach in mathematics over time, and may include the use of pre-teaching.

In cases where children's learning is most effectively being deepened, the following descriptors can be seen in their learning:

Depth:

- describe it in his or her own words;
- represent it in a variety of ways (e.g. using concrete materials, pictures and symbols – the CPA approach)⁸
- explain it to someone else;
- make up his or her own examples (and non-examples) of it;
- see connections between it and other facts or ideas;
- recognise it in new situations and contexts;
- make use of it in various ways, including in new situations.⁹

Greater depth:

- solve problems of greater complexity (i.e. where the approach is not immediately obvious), demonstrating creativity and imagination;
- independently explore and investigate mathematical contexts and structures, communicate results clearly and systematically explain and generalise the mathematics.

NCETM – ['Teaching for Mastery: Questions, tasks and activities to support assessment'](#) (2015)

The school's Marking and Feedback policy allows children's levels of independence to be evident, as instances where pupils have the most secure knowledge and skills can most easily be recognised when they've applied learning independently and in a range of ways, including across different areas of the curriculum. On occasions when such extended depth has yet to be developed, an expected core impact of our curriculum is that pupils are at least ready to move on to the next key stage of learning.

Taking into account ACME's, ['Professional learning for all teachers of mathematics'](#) (2016) report, whereby it is stated, 'highly-effective teachers of mathematics have a positive disposition towards the subject and are comfortable in exploring mathematical ideas with their learners,' the most effective CPD experiences result in this being a key impact on our teaching staff.

The policy is intrinsically linked with and is informed by other school policies, including:

- Calculation policy
- Teaching and Learning policy
- Marking and Feedback policy
- Early Years policy
- Special Educational Needs policy

Last reviewed: _____

Date of next review: _____

Signed: _____

(Chair of Governors)