

# Gillespie Primary School



## Curriculum Intent, Implementation & Impact Maths

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Mathematics is an important discipline that we want all pupils to enjoy and master as it is essential for everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment.

Our aim is for our pupils to approach mathematics with a positive, can do attitude. Teachers have high expectations and promote the belief that 'We can all do maths!'. Our curriculum focuses on securing and deepening pupils understanding of mathematical concepts through manageable steps. Mistakes and misconceptions are embraced as points for new learning and support pupils to embrace challenges, take risks and to be more resilient.

We want children to be fluent with mathematical fundamentals and procedures, be able to recall facts rapidly and accurately, reason mathematically using correct vocabulary and be able to solve increasingly more complex and sophisticated problems. Further, we want our pupils to confidently apply and transfer key knowledge and skills to new contexts and recognise the interconnectedness of maths to other subjects and understand that maths is important in the wider world and serves a real purpose.

### Implementation

At Gillespie we have adopted a teaching for mastery approach that supports all children regardless of background, ability or additional needs to deepen their understanding of maths and to improve progress for all.

We use the White Rose Maths Schemes of learning (WRM) designed to support a mastery approach to teaching and learning. They cover all the required statutory content and are in line with the aims and objectives of the National Curriculum (2014). The WRM curriculum focuses on pupils developing skills of fluency in the fundamentals of mathematics, being able to reason and to solve problems. Pupils in year groups in the main, move together through the curriculum content. Differentiation is demonstrated through abler pupils being encouraged and challenged to go deeper whilst others are given additional support and intervention including, use of concrete equipment to support tasks, adult support in lessons, pre-teaching of some key ideas to increase confidence and participation in lessons, intervention outside of lessons to close gaps and/or deepen understanding.

The WRM curriculum is carefully structured for continuity and progression and ordered in such a way as to make the learning of mathematics more effective. For each year group, the schemes start with work on place value, followed by the essential calculation skills pupils need to succeed in maths. Some things are deliberately taught before others, e.g. place value needs to be understood before working with addition and subtraction, addition needs to be learnt before looking at multiplication (as a model of repeated addition). The curriculum has a strong emphasis on number skills first, carefully ordered, which can then be used and applied in different contexts. The early focus on number each year gives children confidence and helps them to access the rest of the maths curriculum. For some other topics the order is not as crucial, e.g. shapes and statistics needs to come after number, but do not depend on each other.

The WRM curriculum supports visualisation of concepts and pays close attention to the structures of the maths and how best to represent them. Pupils are encouraged to use a range of concrete objects and manipulatives with pictorial resources to support them to understand the structure of maths so that they are able to move towards abstract understanding.

The curriculum promotes mathematical talk. In lessons, there is a strong emphasis on using mathematical language and targeted and open-ended questioning to assess pupils understanding and ensure that they are able to reason and explain their mathematical thinking. Pupils are encouraged to answer questions in full sentences sometimes with sentence starters given, to help articulate thoughts. They are encouraged to share both mental and written strategies for working and to consider the efficiency of methods used. Demonstration of understanding is where a clear explanation of a concept is given independently.

The WRM curriculum supports pupils to be able to perform simpler tasks so that they can then go onto more complex ones. Content is carefully structured so that each step builds carefully from what came before. The curriculum is organised into blocks of learning carefully sequenced. Each block is made up of a series of 'small steps' which again are sequenced in order of difficulty and dependency. Each step builds carefully from the previous step, building on pupils' prior knowledge. Built into the curriculum are opportunities for pupils to revisit, consolidate and practice taught skills later in the year and to build further on these skills in subsequent years. It is recognised that spending lots of time on one topic does not guarantee that all pupils will 'master' it the first time they see it, some need to see it repeated times in different contexts and in different years, to help them develop their understanding on their journey to mastery.

Daily maths lessons are planned from the sequence of small steps for each block of learning. This helps pupils to understand new concepts gradually and over time, supporting them to feel confident and secure. Lessons build on prior learning and concepts are taught through making useful connections between identified mathematical ideas and using a variety of representations that aid understanding and retention. Teachers focus on variation and mindful selection of work to avoid mechanical repetition. All lessons have a clear structure and include elements of fluency, reasoning and problem solving. Teaching and learning sequences are planned carefully to ensure links are made between areas of maths and where appropriate other subjects. Low stakes quizzes and other starter activities are used e.g. Flash back 4 to review prior learning and to support transfer of learning from working memory to long term. Pupils have learnt something new when they can use and apply it in a different context.

White Rose Maths provides a variety of support materials for teachers to use when planning effective lessons. Alongside White Rose, other resources are used regularly to supplement and enrich the maths curriculum offered. These resources include Power Maths, which is closely aligned to White Rose Maths, Nrich materials for interesting problems and challenges and MyMaths which is an interactive online teaching and homework platform that builds pupil engagement and consolidates maths knowledge.

In the Nursery and Early Years Foundation Stage, continuous provision is carefully planned to ensure a variety of mathematical activities are available for children to access freely. These child-led activities are balanced with adult-led opportunities to work more directly with children 1:1 or in small groups. Teachers and other adults in the setting, model and use questioning to encourage pupils to explore mathematical concepts. Mathematical language is modelled to pupils in order to encourage discussion during play and through books and rhymes. In reception, children are also taught in small groups each day, where the White Rose planning is used to support the Early Learning Goals, to ensure that children are given the opportunity to master the fundamental mathematical skills.

### Impact

The impact of having a well-structured, well-taught maths curriculum is strongly seen at the end of Key Stage 2 where children have consistently been achieving good results in mathematics on National Standard Assessment Tests. A high percentage of pupils have been at the expected standard at the end of year 6 and an increasing proportion have been achieving at greater depth. All pupils including those disadvantaged have achieved higher than the National average and have shown good progress.

Regular and ongoing assessment in all year groups informs teaching, as well as intervention, to support and enable the success of each child. Assessment for learning is integral to the daily teaching of mathematics where teachers assess learning in lessons through careful observation, listening to the children, engaging them in discussions about work, asking open-ended questions and checking for understanding. Summative pupil attainment is recorded each term using Target Tracker software, informed by ongoing assessments of progress. Termly Pupil Progress Meetings provides opportunities for teachers to discuss the progress of individual children in more depth with the Senior Leadership Team (SLT).

The teaching and learning of mathematics is monitored and evaluated by the maths subject lead and SLT through lesson observations, talking to pupils and looking regularly at the children's work.

In lesson observations over time, evidence show that pupils are;

- Engaged and challenged
- Enthusiastic and confident to talk about maths
- Making links between mathematical topics
- Using a range of resources to support learning
- Not worried about making mistakes

Children's maths books show evidence of;

- Clear teaching and learning sequences
- High standard of work with a range of areas within maths demonstrating good coverage of fluency, reasoning and problem solving

Children in the Foundation Stage are assessed within the Early Years Framework and their progress tracked using Tapestry observations.