

“Mathematics is not about numbers, equations, computations, or algorithms: it’s about gaining an understanding.” William Paul Thurston

Our Philosophy

At Finham Primary we take a mastery approach to the teaching and learning of mathematics. Through this we aim to encourage a relational understanding – whereby children are able to spot interconnections that exist between different mathematical topics. Furthermore, we look to apply mathematical skills in a range of situations to help develop a deep and long-term retention of learning. Finally, we seek to challenge children through more complex mathematical concepts, with the ultimate aim of developing rounded mathematicians, who have the ability to reason and problem-solve.

For numeracy to be successful, it is dependent on **ALL** primary teachers having the following attributes:

- A sound knowledge of mathematics and how to teach mathematics, which helps to support the children in the curriculum.
- Experience of exploring and discussing mathematical concepts to help develop and model reasoning and explanation.
- A willingness to facilitate children’s mathematical understanding through a variety of different mathematical approaches.
- The ability to motivate children to persevere during a difficult challenge.

Finham Primary School has completely changed its Mathematics provision across the school. Outlined below are the cornerstones of this mathematics provision and what these might look like within a Finham classroom.

A new planning cycle was implemented at Finham in October 2016. Teachers now plan for a four-stage mathematics lesson, that is made up of: **Explore, Clarify, Practice and Extend**. When starting a lesson, children will usually be faced with a problem or question that they must discuss and **explore**. Typically children are given time to question and discuss with their classmates before giving an answer. Next, teachers **clarify** the problem by addressing misconceptions and questioning students about possible approaches. Teachers will then model further examples to help consolidate understanding. During **practice** children will be engaging with tasks that challenge them and allow them to develop within the L.O. Teachers act as facilitators during practice and may have focus groups to provide targeted support. All children will then partake in daily mastery that helps to **extend** their understanding, this usually comes in the form of reasoning and problem-solving where teachers encourage further discussion and explanation. Planning is completed on the school’s planning pro-forma and is then uploaded onto the ‘planning’ site on FROG prior to the commencement of the week.

White Rose Maths Hubs – These schemes have been written *by teachers for teachers*, they follow a block-by-block approach to teaching mathematics, which is comprised in a Yearly Overview. These schemes have number at the heart as we believe number forms the platform for developing competent mathematicians. Hence, a large proportion of time is allocated to reinforce number skills. At Finham we value the concept of depth before breadth, so children are given plenty of opportunity to challenge themselves by engaging in reasoning and problem solving that is specifically designed for their year group. Finally, through using Maths Hubs, teachers can ensure that the class have the opportunity to stay together as they work through the schemes – teachers are able to differentiate this by varying the amount of mathematical application that the different students engage with.

Children at Finham are introduced to new concepts through **concrete, abstract and pictorial** representations. Children should have the opportunity to use **concrete** objects and manipulatives to help them understand. This should be seen in all classes and phases not just in EYFS and KS1. **Pictorial** representations should then be used alongside concrete manipulatives, these can be especially useful during reasoning and problem-solving. By allowing children to engage with **concrete** and **pictorial** representations teachers should be able to facilitate children’s understanding of **abstract** methods, which typically pose the greatest challenge to children.

At Finham we uphold the aims of the National Curriculum that link to **Fluency, Reasoning and Problem Solving**. Through procedural variation the children engage in a wide variety of activities. We aim to: develop children’s fluency in the context of number and calculation; develop their ability to reason mathematically focusing on ‘the why’ and justifying their answers; and solve a variety of problems where they have to apply the mathematics they have engaged with.

A huge focus at Finham has been mastery and how we evidence some of the excellent mastery that takes place at our school. Therefore, teachers at Finham use **‘Mastery Challenges’**. **Mastery Challenges** are evidenced in books weekly and comprise of a wide variety of problems. These usually relate to a recent lesson and will test the children’s fluency, reasoning and problem-solving. These challenges are usually sourced from Maths Hubs Packs, the NCETM or Websites such as N-rich or Twinkl. Mastery challenges should be clearly visible in books and should evidence engagement from the children.

Assessment: mathematics assessment is primarily recorded on Classroom Monitor. But this is also supported by termly Maths Hubs Assessments - arithmetic tests every half-term and reasoning papers termly. Teachers should track assessment scores with RAG spreadsheets, using them to identify gaps in the children’s knowledge and to plan for support and intervention strategies.

Times table practice is essential for developing a secure understanding of number. They underpin a multitude of mathematical concepts and should be practised by the children during the week. In order to be fluent children should learn both multiplication and division facts.

Through co-construction, a **MAT Calculation Policy** has been agreed with respect to the way in which calculations are set out. This has been extremely useful for students as it limits the confusion during transition periods and allows students to focus on developing their calculation skills.