Flying High in Maths at St Helen's

At St Helen's, our vision is 'Flying high together, soaring on wings like eagles'. We believe that every child is entitled to a high-quality mathematics education, which will provide a foundation for them 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.

Our teaching follows the National Curriculum with these aims:

- 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
- 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 non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions

We are on an exciting journey of embedding teaching for mastery to ensure that children of all ages are 'flying high' by acquiring a deep, long-term, secure and adaptable understanding of the subject. Our approach is framed around the Five Big Ideas (NCETM) which underpin teaching for mastery. You can find out more about the Five Big Ideas here: https://www.ncetm.org.uk/teaching-for-mastery/mastery-explained/five-big-ideas-in-teaching-for-mastery/ The children are taught through whole-class interactive teaching where the focus is on all children working together on the same lesson content at the same time, as happens in Shanghai and several other regions that teach maths successfully. This means that the children are on a journey together, allowing no child to be left behind, by following a small step sequence which is reviewed daily to respond to the needs of the children. Small group interventions are used to build in smaller steps to minimise the risk of any child falling behind to ensure that misconceptions are overcome and gaps are closed. This enables the children to be ready to progress onto the next concept.

Maths lessons

In Reception and Year 1, by creating a number-rich learning environment, it is intended that children will be encouraged to engage with meaningful maths learning by 'flying high'. This involves adult-directed teaching, followed by small group work or purposeful play in the provision, stimulated by a curiosity in counting and/or calculating using a range of practical resources, including structured apparatus. The daily morning routine is also dedicated to making the most of using maths by focusing on counting skills and the concept of time, such as using ten frames for the register and snack table. Vocabulary such as 'first, next, then, before, after, yesterday, tomorrow' is used alongside clock times when engaging in discussion about the school day. A calendar and songs also highlight learning about sequencing days and counting down the number of sleeps until an event, discussing one more and one less.

In Years 2-6, the children have a daily maths lesson which consists of whole-class teaching, small group work during investigations or independent learning. The role of the adults is to facilitate mathematical discussion, rather than lead it. The aim of this approach is to ensure that the learning is in the children's hands to promote deep thinking with a goal to achieve concepts embedded in their long-term memory. There is a real emphasis on the answer being just the beginning so that the children are constantly given the opportunity to develop their verbal and written reasoning skills.

Stem sentences and generalisations are used throughout daily maths lessons with an aim that the language focus is understood deeply, not just passively received. This means the language focus is thought about, reasoned with and discussed with others. We have a culture of encouraging the children to ask questions and to not worry if they get things wrong as we all learn from mistakes. Therefore, we aim for mathematical discussion to always be present in the classroom when the children are working independently, showing that they are 'flying high' in maths.

Flashback 4 and Big Maths

As a morning activity on arrival to school, the children engage with Flashback 4 (White Rose) which consists of a series of quick questions, covering something from the previous lesson, last week and topics from earlier in the year – maybe even last year! The reason for this is to ensure essential skills are regularly revisited and retrieved to strengthen retention.

At the start of every Maths lesson across the school, Big Maths is used to dedicate 10-15 minutes each day to 'flying high' with core skills and improving fluency. The CLIC session involves focusing on the following areas:

- Counting – exploring the number relationship of a fact, counting it out and deriving it for themselves
- Learn Its – spending time simply practising and recalling the fact (quiz every Friday)
- It's Nothing New! – applying that fact to new contexts such as everyday objects, units of measure
- Calculation – finally those elements of number knowledge and skills can be applied to larger procedures as pre-requisite background knowledge

Times tables

The focus of times tables teaching and learning in on developing fluent step counting and conceptual understanding of what multiplication and division facts represent and how times tables are structured. Times tables are taught daily or three times a week with slightly longer sessions to ensure that learning is revisited regularly to enable the children to retain and 'fly high' with factual fluency. Our approach involves using FunKey Maths step counting PowerPoints and playing games with cards which provides a safe, fun and sociable space to learn times tables. Times Tables Rock Stars is also used to compliment the teaching of times tables during short bursts of time in the ICT suite or as home learning. Times tables on Times Tables Rock Stars are set to the times tables that the children have already learnt or are currently learning in class, but only after the initial teaching phase has been completed. This is an important strategy to keep the cohort together in their times tables learning.

By the end of KS1, we want all children to be able to step count forwards and backwards in steps of 1, 2, 5 and 10 to 100. This will hugely strengthen their number sense between 0-100 and will set them up to succeed in KS2 in developing number sense beyond 100. We also want children to have rapid recall of 2, 3, 5 and 10 times table facts by the end of KS1, but the mechanism for developing 'automaticity' in these facts should in the first instance be developed through knowledge of doubling facts to 20 for 2 times table and strong conceptual understanding of place value for 10 times table. Our aim is for the children to be fluent in describing the links between a product and its factors in terms of two models of multiplication and two models of division.

In KS2, there is a dual focus on deepening conceptual understanding and the ability to reason around multiplication and division structures, and also the acquisition of key facts to automaticity.

By the end of Year 3, we want the children to also have rapid recall of the 4, 8 and 6 times tables prior to consolidating the 7, 9, 11 and 12 times tables in Year 4.