



## The pedagogical approach to teaching mathematics

**Why?** At Fishbourne CE Primary School, we want our mathematicians to develop an appreciation of the beauty and power of mathematics. They will be curious mathematicians who think deeply about the world, approaching problems creatively and flexibly, including breaking problems down into a series of simpler steps and persevering in seeking solutions. They will have an understanding of the concepts which underpin procedures, the ability to reason mathematically and to make rich connections between the different mathematical domains. They will 'know' numbers; develop a number sense and be able to recall and apply knowledge rapidly, accurately and efficiently. They will be able to move fluently between different representations of mathematical ideas and will be able to use manipulatives to model their mathematical thinking.

**How?** In order to achieve this, we are using a mastery approach to the teaching of mathematics. We recognise the value of the 5 elements of mastery: representation, mathematical thinking, fluency, variation and coherence. We embrace all elements within our lesson design to ensure all learners make maximum progress.

Representations (concrete and pictorial) enable the children to develop their understanding of the structure of maths. This is a vital element in grasping the concepts which underpin all areas of maths and we recognise the importance of this being used throughout the school. Mathematical thinking enables the children to make connections between different areas of maths and apply their knowledge in a variety of contexts. Fluency enables their ability to retrieve facts speedily and calculate efficiently. Planning careful variation enables the children to deepen their conceptual understanding and challenge their thinking. These four elements are drawn together coherently to provide a rich, structured and thoughtful progression through a sequence of lessons.

Teachers draw in the deliberate teaching techniques from 'Teaching Walkthrus': Deliberate Vocabulary Practice, Guided and Independent Practice and Practice Explaining. This results in an unwavering focus on key vocabulary, high quality explanations and children being expected to explain their thinking through the use of STEM sentences. Children are guided through new learning with timely intervention

**What?** Our mathematical curriculum is designed bespoke for the children in each cohort. We start with the National Curriculum and use the White Rose materials to structure our Long Term Plans and ensure coverage. We weave in the DfE Guidance (2020) and the NCETM's Spine materials to ensure a broad and rich curriculum. These sources are drawn together in our Mathematical Thinking Planning Tool for each unit taught.

To ensure fluency, with strong conceptual foundations, we recognise the importance of spaced repetition to embed the children's learning. Therefore, in addition to a maths lesson, every class has a daily arithmetic or mastering number session where prior learning is revisited to consolidate understanding and improve fluency. Within maths lessons, we also provide opportunities for interleaving prior learning.

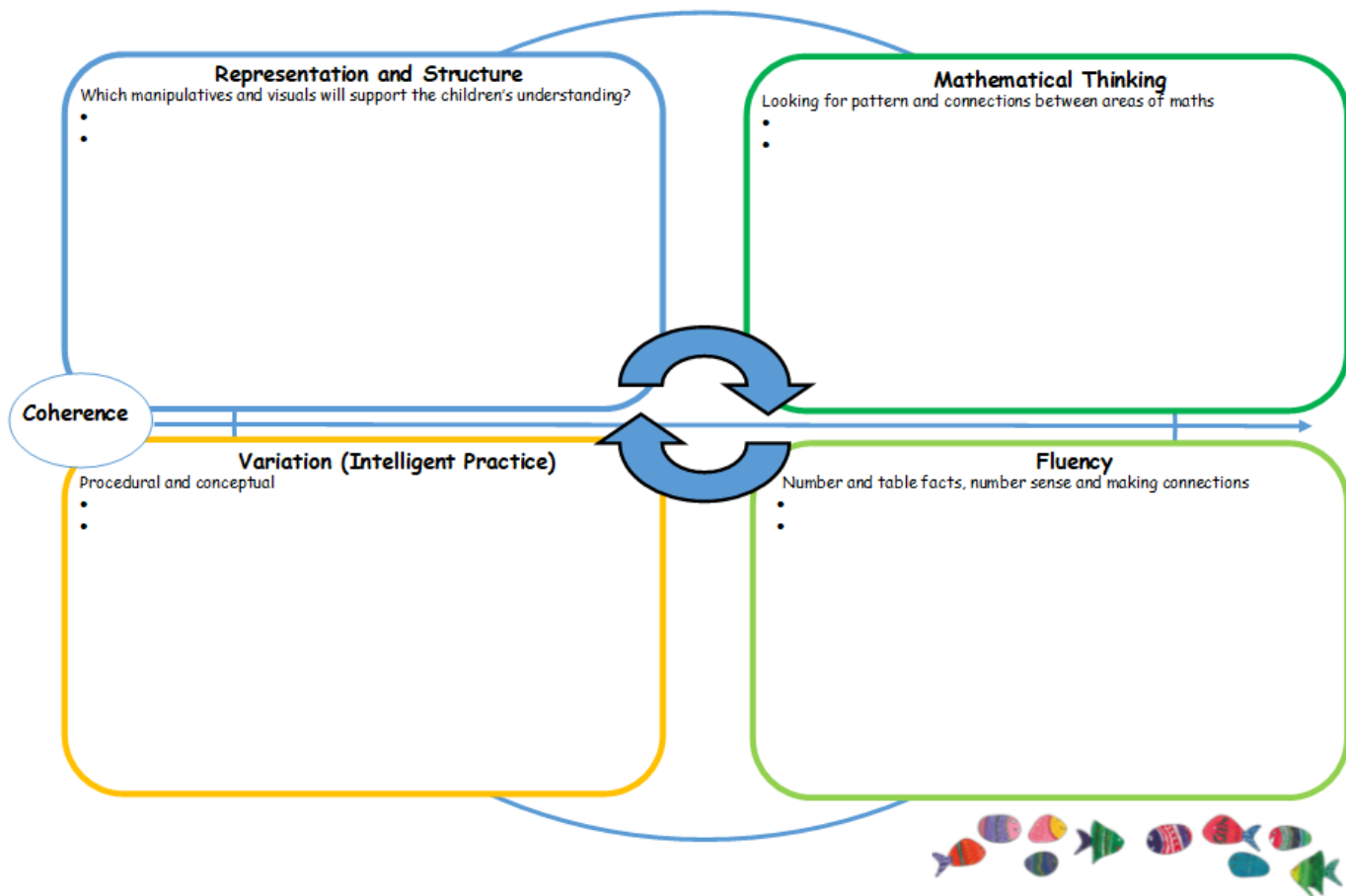
The use of carefully planned big questions, placed strategically within a sequence of lessons, encourages the children to think creatively and flexibly using their mathematical knowledge to solve problems.

So that limits are not placed on children's learning, low threshold, high ceiling tasks are used to enable appropriate challenge for all learners.

We think deeply about children's next steps of learning creating personalised steps where appropriate.

Our Planning Thinking Tool has been designed to support teachers in weaving all the components of lesson design together and planning cohesive units of learning.

# Maths Planning Thinking Tool - ADD UNIT TITLE



<b>Vocabulary</b> * Words for the children to hang their knowledge on * STEM Sentences	
<b>Possible Misconceptions</b> * Where might the children make mistakes? * Use 'Ready to Progress' doc to identify prior knowledge that should be in place	
<b>Big Questions</b> * Designed to enable all children to access learning	
<b>Learning Opportunities (engaging and exciting)</b> * White Rose Resources * Games * Outdoor Learning	
<b>Afl</b> * Baselines * Mini plenaries/baselines? * Exit Tickets? * Formal? * 'Ready to Progress'?	
<b>Adult Subject Knowledge</b> * Are we confident? * Is there any questions? * White Rose vids to support	

Steps for Learning	Lesson Design
Step 1	
Step 2	