

# Mathematics at St Mary's

Together we love, learn and flourish  
'Let all you do be done with love' 1 Corinthians 16:14

## Our vision for Mathematics

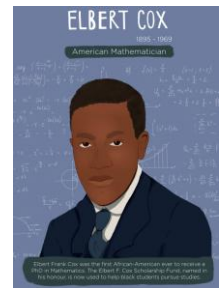
We strive to cultivate a learning environment where every child is empowered to explore mathematics with **curiosity, courage, and compassion**. We nurture resilient learners who embrace challenges, flourishing to be confident and competent mathematicians.

We want our children to develop a positive 'can do' attitude to mathematics where children are actively encouraged to be **curious**, developing rich connections across mathematical ideas. We want our children to be **courageous** in their approach to new concepts as well as challenging themselves and each other to demonstrate their understanding and abilities.

We want our children to have **compassion** for themselves and others, realizing that when we 'Fail' it is our 'First Attempt in Learning'.

## Inspiring our children

Children will be encouraged to learn about inspirational mathematicians from around the world such as Alan Turing a gay British man who is best known for breaking the German Enigma code in the second world war, and Elbert Cox – the first African-American ever to receive a PHD in mathematics.



## How is mathematics taught at St Mary's?

Mathematics is taught daily across school, following the National Curriculum and using the White Rose Maths resource to support with the delivery of this subject. A long-term plan provides an overview of the different units that are taught across school which are revisited and built upon each term. At the heart of our approach is the Concrete Pictorial Abstract (CPA) approach. Research shows that when children are introduced to a new concept, working with concrete physical resources and pictorial representations leads to a better understanding of abstract concepts. We use CPA throughout our schemes of learning.



Children practice and refine their knowledge by revisiting prior knowledge daily and through opportunities to apply their knowledge and skills in meaningful contexts. Our calculation policy sets out the strategies used across school for the teaching of each of the four operations. This highlights the progression across each operation at each stage of learning and ensures consistent approaches are used throughout school. We ensure place value knowledge is understood and embedded before working on concepts such as addition and subtraction, emphasizing the need for number skills first.

Adaptations to the curriculum are provided by teachers where appropriate to ensure all learners can access the learning and achieve.

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## Teaching Sequence



### MODEL:

A new concept or skill is introduced and modelled to the class. The use of concrete manipulatives will be used as teachers' model – using a 'think out loud' approach to provide children with a narrative and explanation of the model. Key mathematical vocabulary is used throughout the model.

*Example: Number bonds to 10 is modelled through the part-part whole method. Teacher models this using a frame and counters. Teacher uses 'think out loud' 'I've got 10 counters here. I am going to put them into my part-part whole frame. My whole is 10. I can split 10 into different parts. I have split it into one part of 4 and another part with 6, when combined the total is still 10'*

### SENTENCE STEMS:

Where possible, a sentence stem is used to reinforce concepts and key messages. These can be used to state a fact, explain a thought process, or give an answer to a problem.

*Example: Amounts can be split into parts, when the parts are combined, they make the whole.*

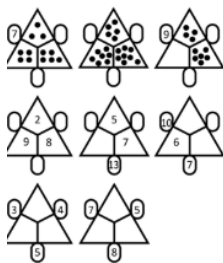
### PRACTISE:

Children are provided with opportunities to practise the new concept using the same manipulatives and examples provided by the teacher. Children are encouraged to use the sentence stem to consolidate their thinking and to embed their understanding.

### VARIED FLUENCY:

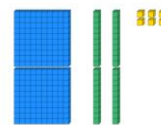
When learning a new concept, children will be provided with different ways to see this new learning. Teachers will provide children with a variation to the procedure or to the concept. This might be showing a different way to approach the learning or use the same idea with a different problem. This allows children to become fluent and accurate. Concepts will be presented to children in different ways.

#### Procedural variation



#### Multiple representations of division

$$246 \div 2$$



100s	10s	1s
100	10	10
100	10	10

$$\begin{array}{r} 2 \overline{) 246} \\ \underline{123} \\ 123 \end{array}$$

These different representations all show division by grouping and can be compared to the standard short division algorithm.

### APPLY:

Once the knowledge and skills are known and understood children will be presented with problems so that they can demonstrate this secure understanding. Children will be encouraged to think critically and challenged to explain their thinking.