



# Maths Policy at Richard Cobden.

## Overview

All children, of all ages, are capable of succeeding at mathematics. At Richard Cobden Primary School, we believe that every child is a mathematician. Using a carefully structured curriculum and high-quality learning opportunities, our aim is to provide a deep, long-term, secure and adaptable understanding of mathematics.

## Curriculum Design

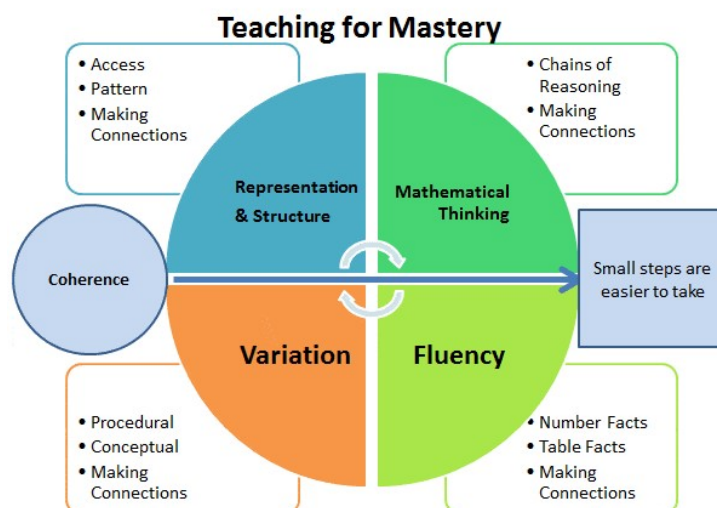
Our mathematics curriculum at Richard Cobden is carefully sequenced to support all children to progress. Richard Cobden uses the White Rose Education schemes as our curriculum spine. These schemes are then supplemented with high quality resources from the NCETM. Each year group has a curriculum map which includes the small steps for each unit, links to White Rose Education and the NCETM. The maps also included suggestions for fluency activities, maths games and reasoning and problem solving.



## Teaching for Mastery

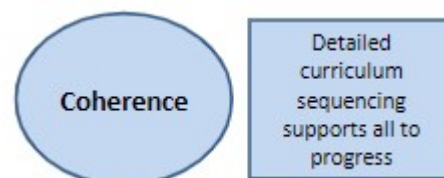
The phrase 'Teaching for Mastery' describes the elements of classroom practice and school organisation that combine to give pupils the best chance of mastering maths. It is carefully structured teaching that is planned in small steps. These small steps provide the necessary scaffold for all to achieve, and the necessary detail to facilitate deep thinking. The small steps are connected and concepts are built. This leads to a generalisation, and the ability to apply it to multiple contexts and solve problems.

The Five Big Ideas from the NCETM underpin the Teaching for Mastery approach in both primary and secondary schools. These five big ideas inform the pedagogical choices we make when planning, delivering and evaluating maths teaching and learning at Richard Cobden.



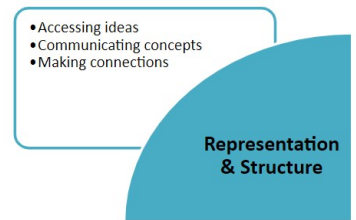
### 1. Coherence

Lessons, units and curriculum are broken down into small connected steps that gradually unfold the mathematical concept being taught. This provides access for all children and leads to a generalisation. "We don't leave any stone unturned" and children have the ability to apply concepts in a variety of contexts.



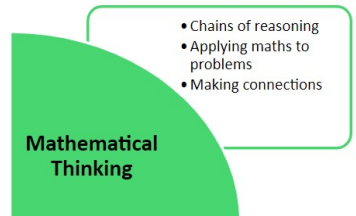
## 2. Representation and Structure

Representations used in lessons expose the mathematical structure being taught. The long-term aim is that students can do the maths without referring to the representation. The purpose of a representation is to expose the structure of the mathematics. It is not used to do the mathematics. Representations can include concrete materials, drawings, diagrams and equations.



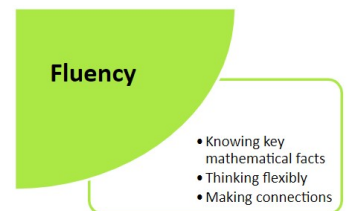
## 3. Mathematical Thinking

If taught ideas are to be understood deeply, they must be thought about, reasoned with and discussed with others. Teaching children precise mathematical language and insisting upon its use supports their ability to think mathematically and empowers them to think deeply. This big idea provides a way to focus on oracy in maths and serves as a reminder to think carefully about the language we use in maths lessons. It's important to explicitly teach children the language and vocabulary they need to discuss the maths that they are doing.



## 4. Fluency

Fluency encompasses a mixture of efficiency, accuracy and flexibility. Quick and efficient recall of facts and procedures is important in order for learners to keep track of sub problems, think strategically and solve problems. Fluency also demands the flexibility to move between different contexts and representations of mathematics, to recognise relationships, make connections and to make appropriate choices from a toolkit of methods, strategies and approaches.



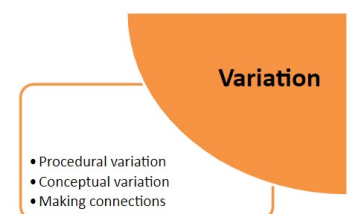
## 5. Variation

Variation is twofold. Firstly, it is how the concept being taught is represented (conceptual variation). Secondly, it is how activities within a lesson are sequenced (procedural variation), paying attention to what is kept the same and what changes.

The central idea of teaching with variation is to highlight the essential features of a concept or idea through varying the non-essential features. When giving examples of a mathematical concept, it is useful to add variation to emphasise:

- a. what it is
- b. what it is not

When constructing a set of activities, it is important to remember what connects the examples and which mathematical structures are being highlighted. Variation is not the same as variety. Careful attention needs to be paid to what aspects are being varied/not being varied and for what purpose.



## Using Oracy in Maths

If taught ideas are to be understood deeply, they must be thought about, reasoned with and discussed with others. Mathematical talk takes practice and the expectation needs to be built up over time.

Here are some ways we build mathematical discussion within Maths lessons at Richard Cobden:

- **Stem sentences** are more specific to the maths being learned but give children a clear, full-sentence structure in which to put their own answers. For example: 'This is the number 42. The 4 represents 4 groups of ten. The 2 represents 2 ones.'

- **Choral repetition of whole sentence answers** can help pupils to engage with more independent mathematical talk
- **Setting an expectation of full-sentence answers** can develop skills and the confidence needed to respond orally to more complex problems.
- Opportunities to **talk about something other than ‘the answer’** creates a more discursive atmosphere and removes anxiety about ‘being wrong’. For example: classifying, comparing or focusing on the method rather than the solution. Questions such as: ‘What do you notice?’, ‘What do you think would happen if..?’, ‘What’s the same?’, ‘What’s different?’
- **Using technical and precise mathematical language** that is introduced explicitly. The introduction of vocabulary should be carefully planned. Mathematical terms can be fun for children to learn and can be an opportunity for exploration.
- **Being aware of words that are often used imprecisely** and cause confusion. Words such as sum, equals, average and half. Beware of words that have a meaning in English that is different from or less precise than the mathematical meaning. Words such as: takeaway, mean, difference, adjacent, factor, negative and range.
- **Generic sentence starters** help to give a structure in which children can express their ideas. Examples might be: I agree because..., I disagree because..., I know \_\_\_\_, then I know...
- **Teachers model oral answers** to a question as a powerful way to demonstrate expectations. My turn, your turn is one method for doing this. The teacher first models the answer to a question and then asks pupils to answer a question with a similar structure, gradually building up the complexity of questions.
- **Think, pair, share**, where pupils first get a chance to try their ideas with a partner, can increase confidence in sharing with the class. When the idea is shared more publicly, because it is ‘our idea’ rather than ‘my idea’, this puts less pressure on the contributors.

## Fluency Provision

At Richard Cobden, we are committed to developing children’s fluency in mathematics. As part of this commitment, in addition to mathematics lessons we also provide additional opportunities to support children’s mathematical fluency. Teachers ensure that when timetabling their daily activities, they consider when to schedule these sessions.

### Flashback 5

At the beginning of every lesson\* for five minutes, the children complete a ‘Flashback 5’. Flashback 5 is a stand alone fluency activity and does not need to be directly connected to the upcoming lesson. For these five minutes, teachers plan an activity that consciously reviews previous concepts.

\*in the EYFS this short session can take place at another point in the day that is suitable to the class routine.

### Additional Fluency Sessions

In addition to Maths lessons, each year group also does additional fluency sessions to support the development of children’s mathematical fluency.

These include **NCTEM’s Mastering Number** programmes for Reception, KS1 and Year 5 and **Number Sense Times Tables Booklets** for Years 3 and 4. Both activities are used to secure firm foundations in the development of good number sense as well as to ensure fact fluency is strong.

## Assessment for Learning

At Richard Cobden we are constantly assessing children to ensure that children are supported to the highest level and lessons can be directed to make the highest impact. Assessment for learning is an integral part of each lesson to check children's knowledge and understanding. Future lessons are then adjusted to reflect this.

Learning through errors and misconceptions is fully integrated into lessons. A supportive environment which encourages the sharing of mistakes as an opportunity for learning is created in each class to ensure that children are able to learn from each other and have the confidence to give Maths a go!

Initially, and most effectively, teachers will give immediate verbal feedback to children during a lesson wherever possible. Children are often given the chance to mark their own work and are therefore given the chance to recognise and address their own errors.

At Richard Cobden, we ensure that adaptive teaching is used in every lesson to allow children to access the curriculum. While we aim for all children to be learning the same skills in a lesson, different resources may be offered to children to support them in their learning. These include concrete resources, number fact tables and the support of an adult.

Informal medium term assessments take place at the end of each unit and assess the main objectives covered in that unit. Years 1-6 are assessed more formally twice a year. We use the scores generated by these tests to make our own judgements as to whether children are on track for Working Towards, Expected or Greater Depth. Year 2 and 6 also use National Curriculum papers from previous years, in order to ensure that children are well-prepared for the National Curriculum tests at the end of each Key Stage.

Teachers are not expected to provide detailed written feedback for children in maths books, as we believe that there are more effective ways of helping children understand how to improve. Our policy is underpinned by the evidence of best practice from the Education Endowment Foundation and other expert organisations.

## Displays

At Richard Cobden, we ensure we have working walls to reflect the learning currently being taught in class. This provides children with reminders, reinforcement and support when tackling Maths problems in the classroom. When displaying Maths language in the classroom, we use dual or triple coding to enable all children to access it. This means using words, numbers and concrete resources (where necessary) to display new vocabulary and skills. These displays are updated regularly to ensure they reflect the current learning in class.

As well as our designated Maths working wall, Maths can be found in all corners of the classroom. This includes number lines on tables, 100 number squares in each class and times tables displayed on the walls.

Effective From	September 2024
Review Date	July 2025