

STRATEGY FOR TEACHING MATHEMATICS

Mathematics is an important creative discipline that helps us to understand and change the World. We want all pupils at The Robinswood Academy Trust to experience the beauty, power and enjoyment of mathematics and develop a sense of curiosity about the subject.

At The Robinswood Academy Trust, we foster positive 'can do' attitudes, believe all children can achieve in mathematics, and teach for secure and deep understanding of mathematical concepts. We use mistakes as an essential part of learning and provide challenge through rich and sophisticated problems before acceleration through new content.

We aim for all children to:

Become **fluent** in the fundamentals of mathematics so that they develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.

Can **solve problems** by applying their mathematics to a variety of problems with increasing sophistication, including in unfamiliar contexts and to model real-life scenarios.

Can **reason mathematically** by following a line of enquiry and develop and present a justification argument or proof using mathematical language.

Have an appreciation of number and number operations, which enables mental calculations and written procedures to be performed **efficiently, fluently and accurately** to be successful in mathematics.

Teaching for Mastery

Mastering maths means pupils acquiring a deep, long-term, secure and adaptable understanding of the subject. The phrase 'teaching for mastery' describes the elements of classroom practice within school that combine to give children the best chances of mastering maths. Achieving mastery means acquiring solid enough understanding of the maths that's been taught to enable children to move on to more advanced material. The effectiveness of teaching for mastery is built on five big ideas: coherence, fluency, mathematical thinking, representations and structures and variation. These five big ideas are the building blocks of the teaching within the Robinswood Academy Trust.

Our schools use the CanDo Maths resources to embed a teaching for mastery approach. These resources break down the national curriculum into small key learning points that are achievable for all. They are taught using 'Do It, Stretch It and Solve It' as the three components of the learning. All children should be given the opportunity to access their age related expectations.

Mathematics Lessons

Each lesson focuses on a manageable step of new learning based on the NC statements and is devoted to the teaching of the whole class. The teacher should support those children within the lesson who have not yet grasped the concept.

Typical Lesson design (what we expect each lesson to look like):

- 1) Hook It: Introduction/explore previous learning/key vocabulary.
- 2) Teach It: Live modelling of the new learning with explicit use of potential misunderstandings.
- 3) Practise It: All children practise together using concrete, pictorial and abstract representations
- 4) **Do It**: Up to 5 examples (focus on 'what it is', standard and non-standard)

5) **Stretch It:** 1 or 2 Misunderstandings (True/false, Spot the mistake)

6) **Solve It:** Apply understanding to solve new problems (empty box/find the symbol, probing questions)

7) **Recap It:** Lesson Recap: Key Concept Statement and Key Vocabulary

Planning for mastery is based on www.mathsnav.com and CanDo Maths.

Arithmetic Meetings:

The 24 skills and strategies, essential elements of any successful mathematician's toolkit, have been carefully selected by The Robinswood Academy Trust to develop pupils' conceptual understanding. By exploring the structure of mathematics and noticing relationships, the objectives aim to improve fluency in calculation, develop a secure and a deep understanding, help pupils make connections and address the requirements of the end of Key Stage 1 and 2 arithmetic national assessments. All objectives to be completed in order.

Arithmetic meetings must be completed daily (20 minutes) and used to review the 24 key objectives to support the children's understanding of the number strands of the National Curriculum.

Day 1 -4: Arithmetic (focus taken from the key objectives in order: fluency and deepening)

Day 5: Fact Friday (Times Tables/Number Bonds)

Assessment

At the end of each term, children will complete the 'Remember It' assessments for the units that have been taught. The information from these assessments must be recorded on the question level analysis (QLA) spreadsheet and the data analysed to support the teachers' assessment for learning (AfL). The data for each school will be collected and sent to CanDo Maths where standardised scores will be awarded.

SEN

Children with special educational needs (SEN) should be given the opportunity to access their age related curriculum by using a range of suitable manipulatives. The teacher should be supporting those children who have not yet grasped the concept, including children who are not SEN, by modelling the use of manipulatives. Mathematics is an abstract subject and the aim is for all children to work towards this using the concrete, pictorial and abstract approach. We believe that the learning difficulties are dependent on the learning task and that we want children to 'keep up, not catch up'.

To achieve this, children with SEN can be supported in four specific ways:

1. Pre-teaching.
2. Same day intervention.
3. Specialist intervention – targeting their knowledge of number.
4. Manipulatives – better inclusion to ensure access for all.