



WHITE ROSE MATHS

&

NATIONAL CENTRE FOR EXCELLENCE IN TEACHING MATHEMATICS (NCETM) PRIORITISATION DOCUMENTS AND READY TO PROGRESS CRITERIA

Teachers plan using a combination of the White Rose Maths and the NCETM Ready to Progress and Number Blocks materials, which support Government guidance for teaching mathematics

White Rose Maths is blocked learning, which has number at its heart, so that children are given the time to develop a deep understanding of the concepts being taught. Teachers use the small steps guidance, for relevant year groups, which ensures that pupils stay in the required key stage to support the depth of understanding before breadth. Using these materials also ensures that progression is clear and children are building on prior learning. These materials also ensure that teachers are providing plenty of opportunities for varied practice and to apply the skills of reasoning and problem solving.

Use of the Ready to Progress Criteria is used to ensure that children spend time developing the skills and understanding of the key concepts needed that will ensure they are ready to progress on to the next stage of their learning.

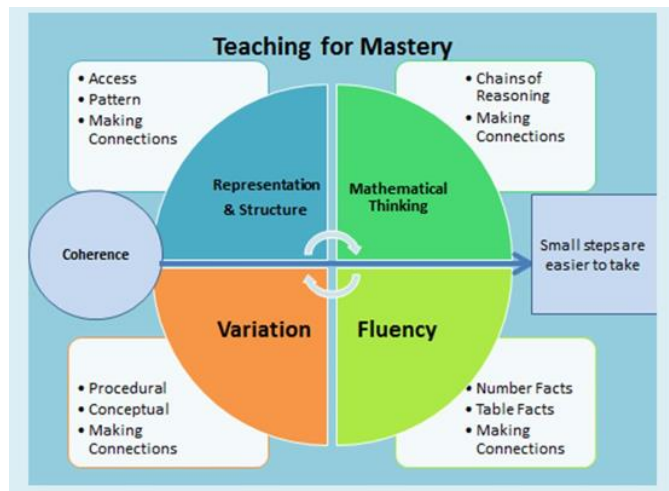
<https://whiterosemaths.com/resources/primary>

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1017683/Maths_guidance_KS1_and_2.pdf

<https://www.ncetm.org.uk/teaching-for-mastery/mastery-materials/primary-mastery-professional-development/>



THE MASTERY APPROACH



Cann Hall is on the path to the teaching of mathematics using the Mastery Approach. It is currently taking part in its third year of the Maths Hub Mastery Programme and EYFS, Year One and Year Two are delivering their first year of the Mastering Early Number Programme.

Maths Mastery focuses on the Five Big Ideas, drawn from research evidence, underpinning teaching for mastery. The diagram helps explain how these ideas work together.

Coherence

Lessons are broken down into small, connected steps that gradually unfold the concept, providing access for all children and leading to a generalisation of the concept and the ability to apply the concept to a range of contexts.

Representation and Structure

Representations used in lessons expose the mathematical structure being taught, the aim being that students can do the maths without recourse to the representation

Mathematical Thinking

If taught ideas are to be understood deeply, they must not merely be passively received but must be worked on by the student: thought about, reasoned with and discussed with others

Fluency

Quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations of mathematics

Variation

Variation is firstly about how the teacher represents the concept being taught, often in more than one way, to draw attention to critical aspects, and to develop deep and holistic understanding. It is also about the sequencing of the episodes, activities and exercises used within a lesson and follow up practice, paying attention to what is kept the same and what changes, to connect the mathematics and draw attention to mathematical relationships and structure.

The Five Big Ideas were first published by the NCETM in 2017.

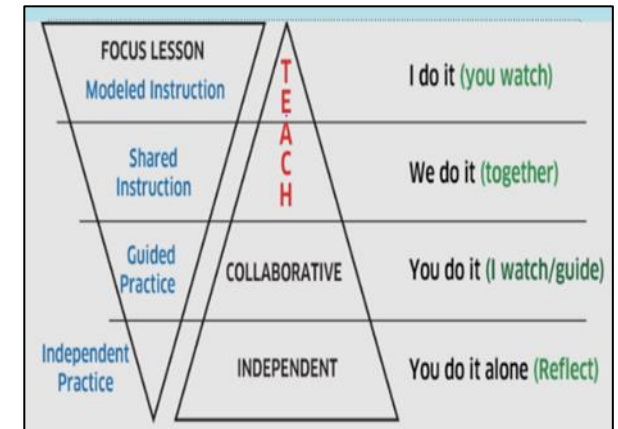
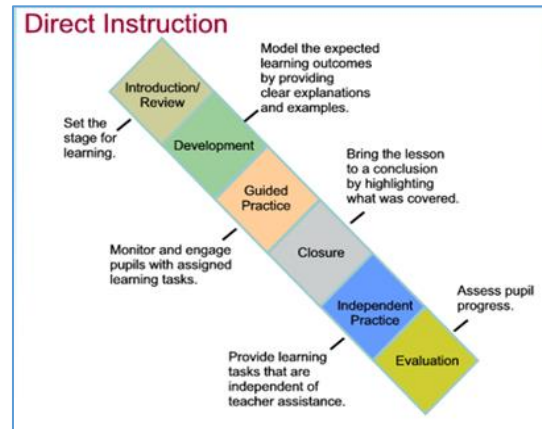
<https://www.ncetm.org.uk/teaching-for-mastery/mastery-explained/five-big-ideas-in-teaching-for-mastery/>

A TYPICAL MATHS LESSON

When planning our maths lessons, we use Rosenshine's Principles of Instruction to guide us.

All lessons will include:

- Revisiting of prior learning
- New materials being introduced in small steps
- Teacher modelling, using the concrete, pictorial, abstract approaches (conceptual variation)
- Use of stem sentences, to support the children's thinking
- Guided pupil practice to support pupil understanding and teacher assessment
- Independent practice to develop fluency, reasoning and problem solving (procedural variation)
- Scaffolding to ensure all children can access the learning
- Questioning to develop and check understanding
- Regular opportunities for children to 'dive deeper' into mathematical concepts



In order for the children to develop fluency in their times tables facts to 12 x12 by the end of year 4, we employ a whole school approach to the teaching of these important facts.

Year groups focus on one table per half term, with opportunities to revisit and embed previous learning.

Before formally learning their tables facts, in Year 2, children learn to:

- When children are confident with these concepts and can combine equal groups to calculate a product, they can begin to incorporate strategies to learn and understand the times tables

WHOLE SCHOOL APPROACH TO THE TEACHING OF TIMES TABLES

2ND YEAR

YEAR	First half term	Second half term	Third half term	Fourth half term	Fifth half term	Sixth half term
Year 1	Experience of counting in 1s, 2s, 5, 10s					
Year 2	1×	2×	5×	10×	0× and revision	revision
Year 3	4 ×	8 ×	3×	6×	12×	revision
Year 4*	9×	7×	11×	Squares	revision	Official MTC - June
Year 5&6	Targeted teaching, after analysis, of times tables facts children are still not secure in					

***Again, until this approach is embedded in Years 1-3, Y4 will still need to plan in targeted teaching to address gaps across 12x12, as for Y5 & Y6**

A minimum of three maths lessons per half term (weeks 1, 2 and 5) are devoted to exploring the patterns and connections within the new times table and daily retrieval practice takes place to develop fluency, for example: quick reaction games, counting-stick work, step counting using manipulatives, arrays, quick reaction games, using technology, chanting and weekly quizzes.

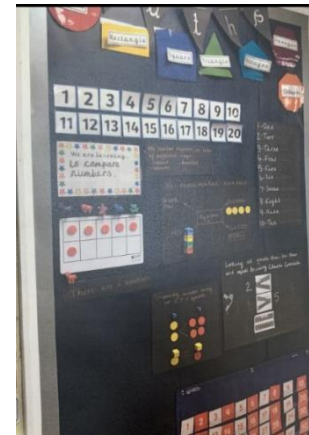
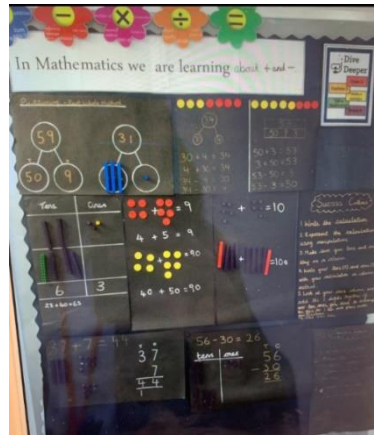
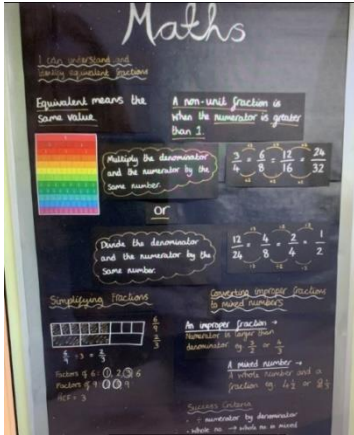
We also use TT Rock Stars, alongside the above approaches, as an opportunity for children to develop their rapid recall of these facts. In school and at home.



MATHS WORKING WALLS

Every classroom has a designated Maths Working Wall, to support the children's learning.

Over the course of the year, these working walls display a range of scaffolds, for example, various models and images, depicted using the concrete, pictorial or abstract approach; varied representations; success criteria; specific vocabulary; key facts. These all support the children in their lessons in being able to apply current concepts and skills.



The maths working wall (or another display area in the classroom) also demonstrates the conceptual links to everyday life of the current times table focus.



MATHS MEETINGS

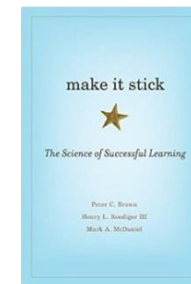
Maths meetings support the 'Make It Stick' principles of regular retrieval practice, spaced and interleaved learning.

Retrieval practice asks children to retrieve prior learning from memory as repeated recall helps strengthen the memory so that children are less likely to forget, leading to durable learning.

Spaced learning gives children a little time to forget so that more effort is needed for retrieval, which produces stronger learning and retention.

Interleaved learning requires pupils to assess and discriminate between problems, selecting and applying the most efficient mathematical skills, strategies and understanding. Interleaved learning supports the children's understanding of everyday life, where problems are unpredictable, involve a range of mathematical concepts and do not follow a predictable sequence.

Maths meetings take place regularly across the week, separate from the daily maths session, in all year groups. Typical maths meetings will include the revisiting of prior learning, fluency in the times tables facts, understanding key mathematical vocabulary, ready to progress concepts, pre-teaching and assessment opportunities.



Assessing Mathematics

Informal assessments are made in all year groups on an ongoing basis during our maths sessions, through class discussions, questioning and recorded work.

More formal assessments are completed at designated times throughout the year for Years 2-6, using White Rose Assessments and past SATs papers to support teacher assessment.

The EYFS teachers gather their assessment information through recorded observations during their independent and adult led group work.