



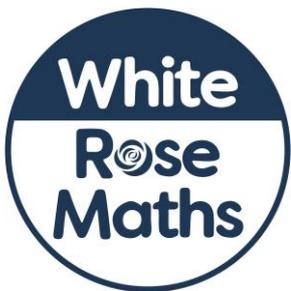
# Dunstone Primary School Maths Policy

December 2020

## INTENT

We understand that our learners come from a wide variety of backgrounds with varying exposure to mathematical concepts and practical experience. As a result, they require robust and clear progression through mathematical concepts and support with learning. The goal of our Maths teaching is to deliver the core aims of the National Curriculum - both in the mathematics lessons and across the curriculum as a whole. Our children will be taught to be confident, successful and proficient mathematicians who can apply their Maths to other contexts and situations. We want our children to leave Primary school 'Secondary ready', with excellent foundations for future learning.

## IMPLEMENTATION



## Mathematics at Dunstone 2020-2021

At Dunstone Primary School, we use White Rose Maths schemes of learning, and a modified version of their resources in order to provide a comprehensive and expertly designed journey through the world of Mathematics. White Rose is based on a small steps approach that keeps all learners together. By using the resources across the school we can ensure consistency of the mathematical elements and comprehensive coverage of the curriculum. We believe that this approach will facilitate consistent delivery of Mathematics across the school and across the inevitable ability range within year groups. It is also designed to support mathematicians who require more time and visual representation to grasp fundamental concepts and those who require challenging further to achieve Greater Depth.

## White Rose Resources support us to provide:

- CPA (Concrete / Pictorial / Abstract) representations.
- Variation (Procedural / Conceptual).
- Logical and effective small steps.
- Vocabulary.
- Manipulative usage.

## White Rose resources support:

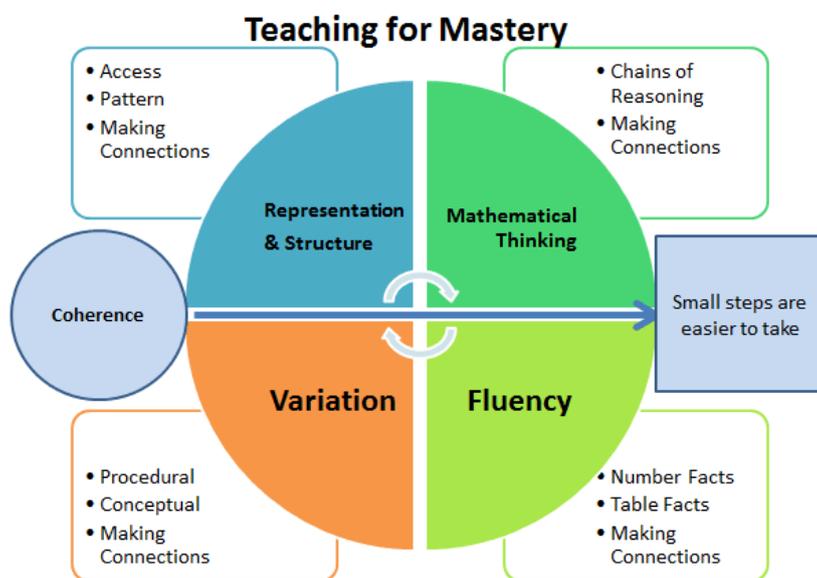
- All learners through a whole class learning approach.
- EYFS stage learning.
- Visual representation designed to show concepts clearly.
- Re-visiting of concepts.
- Bar models and PPW models for problem solving.
- Clear progression of calculation.
- Fluency of calculation and concept with 'Flashback 4' questions

## Manipulatives are:

- Used purposefully and appropriately.
- They are available for appropriate lessons – this builds a mental picture of a mathematical concept.
- Manipulative use develops through concepts as the learner moves from EYFS to Y6

White Rose uses the Teaching for Mastery model as illustrated below. This has been developed by the NCETM

[NCETM 'Teaching for mastery'](#)

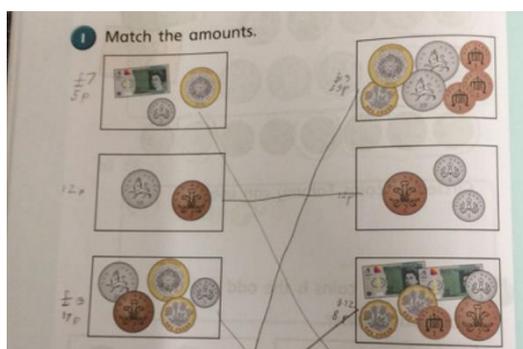


## Concrete – Pictorial – Abstract teaching strategy

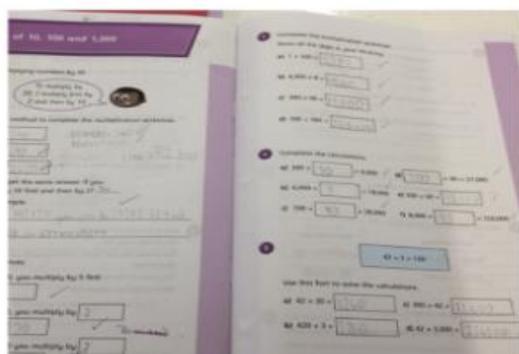
Children are encouraged to solve problems each day through the use of concrete resources, pictorial representations and abstract thinking. (Outlined below)



Concrete is the 'doing' stage, using concrete objects to solve problems. It brings concepts to life as children have the opportunity to be hands on and use physical objects to aid them in developing their understanding.

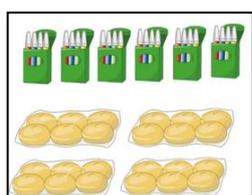


Pictorial is the 'seeing' stage, where representations of the objects are used to support learning. This stage encourages children to make a mental connection between the physical object and abstract levels of understanding, by drawing or looking at pictures, circles, diagrams or models which represent the objects in the problem.

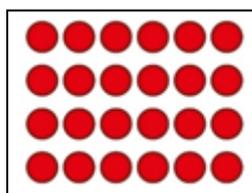


Abstract is the 'symbolic' stage, where children are able to use abstract symbols to model and solve Maths problems.

Concrete



Pictorial



Abstract

$$\begin{aligned} 6 \times 4 &= 24 \\ 4 \times 6 &= 24 \end{aligned}$$

## Lesson structure

<u>Area of Learning</u>	<u>Format/Sequence</u>
<b><u>Fluency</u></b> Maths recording books	<ul style="list-style-type: none"> <li>Flashback 4 (these are provided for each lesson) – use as early morning work/separate to the main lesson.</li> <li>Numbots and TT Rockstars used and monitored to support fluency facts learning.</li> </ul> 
<b><u>Vocabulary</u></b>	<ul style="list-style-type: none"> <li>Vocabulary slide at the beginning of the lesson to discuss and reinforce key vocabulary.               <ul style="list-style-type: none"> <li>New vocabulary is indicated in red.</li> <li>Teachers model vocabulary throughout the lessons and expect to hear it in children's answers.</li> <li>Children repeat new vocabulary then discuss/explain.</li> <li>When revising vocabulary, give children the opportunities to explain or revoice meanings to a partner or the class.</li> </ul> </li> </ul>
<b><u>True / False</u></b>	<ul style="list-style-type: none"> <li>True/False – lesson opener completed on whiteboards and then discussed. Modelled answers and re-voicing is important.</li> </ul>
<b><u>Core Maths learning</u></b>  <b><u>White Rose Maths</u></b> White Rose booklets Maths recording books  	<ul style="list-style-type: none"> <li>Lesson progression is guided primarily by White Rose (WR) structure and small steps.</li> <li>White Rose Booklets to be used to record learning.</li> <li>All lessons to be planned to use the WR Teaching slides as a basis.               <ul style="list-style-type: none"> <li>Video should be used to support teacher's understanding of the lesson content and model tasks and descriptive methods – not as the lesson.</li> </ul> </li> <li>Learning objective and key vocabulary for the lesson on the first slide.</li> <li>Initial 'warm up' questions on WR slides to be completed in Maths recording books.</li> <li>Key questions on slides in yellow. Children should answer in full sentences (using key vocabulary where appropriate).</li> <li>Stem sentences should be highlighted in blue – children can chant/ pair repeat these.               <ul style="list-style-type: none"> <li>Stems should be repeated on subsequent slides for use answering questions.</li> <li>Children should be encouraged to use stems to explain concepts and ideas.</li> </ul> </li> <li>Challenging questions can be including on teaching slides as required.</li> <li>Children to be provided with challenge questions when they have completed learning.               <ul style="list-style-type: none"> <li>These should be available to access as required during lessons.</li> <li>Children should be provided with opportunities to explain their understanding.</li> <li>Challenge tasks should be completed in Maths recording books.</li> </ul> </li> <li>All Maths planning to be saved in a Planning Folder in Teachers on Teams.</li> <li>Manipulative based lessons where there are less written outcomes can be recorded with photographs and a comment relevant to the individual child – what was the outcome for them – did they understand the small step?               <ul style="list-style-type: none"> <li>Teachers/ TAs can use post it notes to capture the child's understanding 'live'.</li> </ul> </li> </ul>
<b><u>Feedback</u></b>	<ul style="list-style-type: none"> <li>Live Marking can be used alongside teacher 'live' feedback</li> <li>Self/Peer-marking can be completed in lessons in blue pen.</li> <li>TAs should be writing in workbooks to show where a child has been supported with follow on questioning or a note to indicate intervention (using purple pen)</li> <li>Bubbles can be used to identify misunderstandings for clarification.</li> <li>Bubbles should be re-visited to check misunderstanding has been remedied</li> <li>Aspiring to resolve misconceptions through short intervention before next lesson.</li> </ul>
<b><u>Presentation</u></b>	<ul style="list-style-type: none"> <li>Short date on work / Square (teacher)/ Circle (learner) to be completed per lesson.</li> <li>Number formation should be clear and unambiguous and practised if necessary.</li> <li>Use pencil for Maths writing and rulers for drawing lines and representations.</li> <li>High expectations for presentation must be upheld – including squares being used to demarcate numbers and place value columns.</li> </ul>
<b><u>Assessment</u></b>	<ul style="list-style-type: none"> <li>White Rose Maths - End of unit assessments</li> <li>Hodder Assessments– Three per year at the end of T2/T4/T6 assessments.</li> <li>Statutory testing – KS1/KS2 - Y2 and Y6.</li> <li>Year 4 Times table check.</li> </ul>
<b><u>Personalised curriculum</u></b>	<ul style="list-style-type: none"> <li>Laptops for PC children using appropriately choses WR resources.</li> <li>PC learners can use the WR assessment resources to monitor progress.</li> </ul>

## Other elements

### Fluency - Number facts

It is critical that children know the number facts in line with their year group and the maths they are learning. Without secure number facts, learners have to spend too much processing time calculating rather than investigating and practising new concepts. Subsequent years build on that experience. The required knowledge is outlined in the KIRFS (Key Instant Recall Facts) document.

## EYFS

EYFS follow the White Rose schemes of learning – principally securing the representations of numbers up to 10 and recognising number to 20. Children are encouraged to spot patterns and identify differences through variation. EYFS children begin their fluency journey by noticing and recalling numbers up to 20. EYFS practise is predicated on exploration and discovery with songs and repetition to secure foundational knowledge.

## IMPACT

- Through the White Rose learning journey and the clear small steps approach, the teachers, support staff and the pupils assess their learning continuously throughout the lesson.
- At the end of the unit, block assessment tasks are completed, where children have the opportunity to reflect on their knowledge and understanding.
- Three formal assessments take place in a year using Hodder PUMA assessments.
- We are developing our assessment systems to enable teachers to make informed judgements about the depth of learning and the progress learners have made over time.

## Monitoring and Evaluation

### The following elements will be monitored

- Planning (Powerpoint of each lesson and sequence)
- Children's books
- Pupil conferencing and classroom practice visits through Learning Walks.

This monitoring will be fed back to staff and governors.

### Learning Walks will be used to monitor classroom practice - including:

- Learning walls
- Pupil voice
- Delivery of learning
- STEM sentence use
- TA provision including intervention