

Maths Rationale 2021-2022

What We Teach and Why We Teach it!

Mad 4 Maths (M4M)

Every morning when the children come in to school they will get straight to work on a M4M worksheet. This worksheet is produced by each teacher to meet the needs of their class.

We do this because it gives the children chance to practice their prior knowledge. The worksheets have a mixture of prior learning questions to practice fluency and new learning that may be needed in the coming weeks. This ensures that children are given an opportunity to use their prior learning every day. We use assessment data from the end of each taught unit to decide what we need to include on the M4M sheets.

Daily Maths Lessons

Every year group Yr1 – Yr6 teach an explicit maths lesson daily. This is following the White Rose Scheme of learning.

We use White Rose because after careful analysis we found that this programme of study goes above and beyond what is expected of the National Curriculum. The White Rose scheme has been adapted to fill gaps in knowledge for every year group in every unit of work following the disruption to teaching due to Covid. It clearly builds on prior knowledge and uses the 'Get Ready' section to revise prior learning that will be needed for the lesson.

Every year group uses White Rose powerpoints and worksheets to deliver their lessons.

We do this because following the disruption to teaching caused by Covid we decided that we needed a consistent, whole school approach to teaching. The powerpoints and worksheets use high quality questioning and vocabulary to support learning. They include opportunity for discussion and a variety of fluency, reasoning and problem solving in every lesson. The progression within the lesson is clearly evident, ensuring that children are all learning at the same pace. The worksheets are used again to ensure consistency across school with the quality of teaching and learning on offer. The worksheets display a variety of fluency, problem solving and reasoning problems and they also demonstrate a range of pictorial concepts for each lesson.

The White Rose scheme of learning is used as a planning tool.

We use this because following on from training from The Maths Hub on Small Steps Teaching, we felt that the sequence of learning within the WR scheme of learning was the most effective way for ensuring that our children make progress and have the opportunity to master a unit area before moving to the next step of learning. By using the small steps, this enables all children to progress within the subject, whilst giving opportunity for deeper thinking for more abled children.

Lessons use a range of concrete, pictorial and conceptual procedures to support learning.

Concrete and pictorial procedures are used heavily in KS1 to support learning. This is because younger children will often need to 'see' the maths before they move on to understanding conceptual maths. Concrete procedures enable children to explore their learning in a practical manner and this is particularly helpful when taking part in independent learning in continuous provision. The reliance on concrete materials however should begin to be diminished in LKS2 and a more prominent reliance on pictorial will be evident. Concrete materials should still be available to support learners where needed. By UKS2 the reliance on pictorial will not be so prevalent and more conceptual procedures will be evident as the children should be secure in the key mathematical concepts that underpin the maths curriculum.

Explicit 20-minute fluency lessons are taught daily.

This is used to practice number facts and number knowledge. Children need to be fluent in their age-related number fact expectations in order to be able to successfully apply their skills to reasoning and problem solving. The fluency knowledge underpins every aspect of maths learning and this needs daily practice to ensure that new knowledge is taught and that children have the time to practice what they have already learned.

Assessment

We use the White Rose assessments to assess the children termly.

We do this because we use this data to inform our judgements on where the children are in regards to their age-related expectations. This data is also used to identify any children who are off track and identify who may need extra support and intervention. This is collected termly and the data is imputed into insight for data collection. This is not done more frequently as we do not feel it would be beneficial and it would have a negative effect on teacher workload and well-being. The raw scores for the assessments are translated into percentages. We use the same percentage scoring system as what is used in KS2 SATs as this allows us to make accurate comparisons across year groups in preparation for SATs.

Half termly the children complete a Star Maths assessment.

This is used to track small step progress across the school. The data is collected on the computer programme so this does not affect teacher workload. It is used to demonstrate progress levels for every child, even if it is not evident that they have changed age related expectations.

White Rose end of unit assessments are used at the end of every unit taught.

End of unit assessments are used to ensure that children have gained the knowledge that they need to progress. If gaps in knowledge are discovered, these are filled by using these areas in the M4M sheets. The results are just collected for individual teachers' use and it is not expected that these are recorded anywhere. They are solely for the purpose of informing future M4M teaching and extra practice needed in fluency sessions.

Computer programs used

Times Tables Rockstars and Sumdog

Both are promoted in school as fluency tools. Times Tables Rockstars is solely focused on multiplication fact knowledge. This is used heavily to support home practice in preparation for the Year 4 multiplication check. Sumdog covers all aspects of maths fluency. This is a responsive program that adapts to the children's level and they are given targeted questions to support their learning. The children all have log in and it is promoted that they use these at home. These can be set as homework tasks.

This rationale supports the intent, implementation and impact statements for Maths in Collierley Primary School.

Intent:

The intent of our mathematics curriculum is to provide our children with a foundation for understanding number, reasoning, thinking logically and problem solving with resilience so that they are fully prepared for the future. By using the mastery approach in every lesson, it is intended that all children regardless of their starting point will be able to succeed at mathematics and will develop a positive attitude towards the subject that will stay with them throughout their lifetime.

Implementation:

- Mad4Maths (daily fluency) is accessed by all children across KS1 and 2 daily - in KS2 this is self-marked with the teacher modelling how to answer questions using good verbal explanations. This is planned following assessment and is important for rapid catch up.
- Daily fluency is a high focus in lessons. Number knowledge and number sense is taught within every maths lesson for 15 minutes.
- The appropriate mathematical language for each year group is taught daily and children consolidate prior language learned across the years.
- Children use full sentences using the correct mathematical vocabulary.
- Within every lesson, all children access mastery: problem solving, reasoning and fluency taught within a progressive lesson of small steps.
- Lessons are planned with the end points as a starting point for cohesive planning.
- Within every lesson the children practise their counting skills and are taught to see links to known facts e.g. if you can count in 1s you can count in 0.1s, if you can count in 10ths you can count in 100ths etc
- Daily lessons involve children identifying the most efficient/accurate method of calculation for questions.
- White Rose Scheme of Learning is used as a basis for the curriculum overview with lessons adjusted where learning is not linked to appropriate year group.
- The NCTEM progression documents are used to ensure new learning builds on prior learning and clear progression is happening across the topics across the school. The 'Ready to Progress' documents are used to ensure that children are secure in their knowledge.
- Children are taught through visual representations.
- Children are taught to apply the bar modelling method.

- Children are taught to form numbers correctly from the outset and this is insisted upon throughout the school with one digit per square, one operation per square taught consistently.
- End of unit assessment is used to support teachers to identify misconceptions or gaps in learning. These are then addressed within daily Mad4Maths sessions.
- Times Tables Rockstars and Sumdog are used to support children to continue their learning at home.
- Children are encouraged to question mathematical concepts and to use a variety of skills to help to solve both reasoning and problem solving questions.

Monitoring:

The Maths subject lead will monitor the following on a fortnightly basis:

- Progress against children knowing times tables and number facts
- Math books for consistency across the school in the implementation

Impact:

Children at Collierley Primary have a love of mathematics.

Children are able to identify best methods of calculation across the whole school.

Children have a secure number fact and place value base.

Children know all times tables by the end of Y4.

Children meet the end of year expectations in their year group or their academic year group.

Children are able to apply learning to varying contexts, demonstrating mastery.

Where children are unable to do this appropriate intervention is put in place and impact measured through precision teaching.