



Learning Together, Learning for Life

## **Reed First school Mathematics Policy**

“Mathematics is a creative and highly interconnected discipline that has been developed over centuries, providing the solution to some of history’s most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.”

National Curriculum 2014

### **Aims**

At Reed First School, our mathematics curriculum follows the Programme of Study and Aims of the National Curriculum and The Early Years Foundation Stage framework 2026.

The National Curriculum for mathematics aims to ensure that all pupils:

- Develop a strong grounding in number essential to develop the necessary building blocks to excel mathematically.
- Count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers.
- Develop a secure base of knowledge and vocabulary from which mastery of mathematics is built.
- Develop their spatial reasoning skills across all areas of mathematics including shape, space and measures.
- Develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections
- ‘Have a go’, talk to adults and peers about what they notice and not be afraid to make mistakes.

### **Our Vision**

Our vision for mathematics ensures every pupil is given a broad, balanced, engaging and relevant curriculum that takes into account the requirements of the National Curriculum, the EYFS Framework and other guidance documents.

The basic skills of mathematics are vital for the life opportunities of our children. We aim to offer a creative and inclusive curriculum which inspires, engages and challenges all children to think mathematically, enabling them to reason and solve problems in a range of contexts and broaden their knowledge and understanding of how mathematics is used in the wider world by making rich and varied real life connections.

At Reed First School we empower our children with a 'CAN DO' or 'I CAN'T DO IT YET' attitude, embracing our values in developing Aspirational, Independent and Resilient Learners. We encourage children to develop their knowledge and understanding of mathematics and aim for all pupils to enjoy and achieve in mathematics and become confident mathematicians. We believe that ability within Mathematics is not fixed. We are developing the mindsets of children and adults alike to develop a Growth Mindset and a 'We Can' attitude to Mathematics in a safe environment, where children understand that being wrong is ok, this is how we learn.

We believe that

- through quality first teaching
- children learning together, discussion and a well-developed vocabulary
- using and exploring a wide range of models, manipulatives and concrete, abstract and pictorial resources
- and immediate intervention

all children have the potential to 'go deeper' and broaden their understanding of mathematical concepts and develop positive attitudes, fascination and excitement for mathematics.

Skills for learning are a high priority. For example, being able to explain ideas and respond to feedback from teachers and peers are crucial to our curriculum. Being confident, resilient, able to persevere and show determination is at the core of what we want to achieve.

### **Teaching and Learning -**

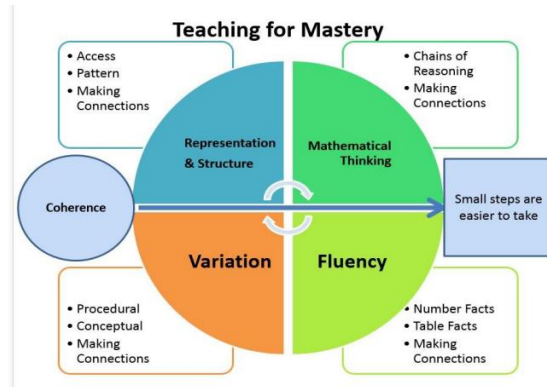
The teaching and learning of mathematics at Reed First School should include aspects of the following Mastery approach strategies in every lesson and/or over a series of lessons:



**CONCRETE** Concrete is the “doing” stage, using concrete objects to model problems. Instead of the traditional method of mathematics teaching, where a teacher demonstrates how to solve a problem, the CPA approach brings concepts to life by allowing pupils to experience and handle physical objects themselves. Every new abstract concept is learned first with a “concrete” or physical experience. For example, if a problem is about adding up four baskets of fruit, the pupils might first handle actual fruit before progressing to handling counters or cubes which are used to represent the fruit.

**PICTORIAL** Pictorial is the “seeing” stage, using representations of the objects to model problems. This stage encourages pupils 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. Building or drawing a model makes it easier for pupils to grasp concepts they traditionally find more difficult, such as fractions, as it helps them visualise the problem and make it more accessible.

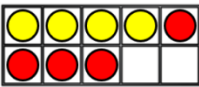
**ABSTRACT** Abstract is the “symbolic” stage, where pupils are able to use abstract symbols to model problems. Only once a child has demonstrated that they have a solid understanding of the “concrete” and “pictorial” representations of the problem, can the teacher introduce the more “abstract” concept, such as mathematical symbols. Pupils are introduced to the concept at symbolic level, using only numbers, notation, and mathematical symbols, for example +, −, x, / to indicate addition, subtraction, multiplication, or division.



**What is Fluency?** Fluency comes from deep knowledge and practice. Fluency includes: conceptual understanding, accuracy, rapid recall, retention and practice.

Fluency is supported in daily ‘Maths fluency’ sessions in KS1 and 2 in addition to maths lessons. Here the children have the opportunity to rehearse mathematical concepts and recall of facts previously taught.

1)  $0 + 3 = \square$      $1 + 2 = \square$      $2 + 1 = \square$

2)   $\square$  is a part     $\square$  is a part  
 $\square$  is the whole.

An example of a KS1 maths fluency screen.

3) Draw 14 counters.

4) Which glass is nearly full? A  B 

$\square + \square = 6$  Find all the answers.

In Early Years, fluency opportunities are available in all Child Initiated Learning time. Resources, activities and skilled conversations enable regular rehearsal of mathematical knowledge and understanding and the children’s fluency of this. For example, daily registration including counting children at school.



**Accuracy** – Pupils carefully completing calculations with no or few careless errors.

**Pace** – Pupils are able to quickly recall the appropriate strategy to solve the calculation and progress through a number of questions at an age-appropriate pace.

**Retention** – Pupils will be able to retain their knowledge and understanding on a separate occasion to when the concept was first introduced.

**What is Reasoning?** Verbal reasoning demonstrates that pupils understand the mathematics. Talk is an integral part of mastery as it encourages students to reason, justify and explain their thinking.

**Mathematical Talk** - The way pupils speak and write about their mathematics transforms their learning. Mastery approaches use a carefully sequenced, structured approach to introduce and reinforce mathematical vocabulary.

To encourage talk in mathematics, teachers should introduce concepts by including sentence structures (stem sentences). Pupils should be able to say not just what the answer is, but how they know it's right. This is key to building mathematical language and reasoning skills. This gives pupils the confidence to communicate their ideas clearly, before writing them down. Stem Sentences will be displayed in the classroom alongside key vocabulary. By displaying the vocabulary during the lesson, pupils will be able to use this independently. A table mat with suggested sentence stems should be available to the children during teaching and talk time partner work.

Teachers will maintain a high expectation upon pupils to repeat and use the correct mathematical vocabulary to explain their understanding verbally and in their reflection comments.

When questioning and encouraging mathematical talk teachers could ask:

- Show me how to complete the calculation
- Teach your friend how to complete the calculation
- How do you know which operation to use?
- Why have you chosen this method?
- How else can you represent this number?
- What have you learnt today?
- True or False
- Odd one out
- Sometimes, Always, Never

**What is Problem Solving?** Mathematical problem solving is at the heart of the Mastery Approach. Pupils are encouraged to identify, understand and apply relevant mathematical ideas and make connections between different ideas. This builds the skills needed to tackle new problems, rather than simply repeating routines without a secure understanding. Mathematical concepts are explored in a variety of representations and problem-solving contexts to give pupils a richer and deeper learning experience. Pupils combine different concepts to solve complex problems, and apply knowledge to real-life situations. Through problem solving, pupils are required to select their mathematical knowledge and apply this to a new concept.

## **Planning**

At Reed First school Teachers follow the **White Rose Planning**. This provides the yearly long-term overview and Medium-Term planning for each year group separately and mixed age classes.

The White Rose Maths Curriculum is a cumulative curriculum, so once a topic is covered it is met many times again in other contexts. The Scheme of Learning is designed to support a mastery approach to teaching and learning. The yearly overview provides a Long-Term Plan and is arranged into 'Blocks'. Each term, the Learning Objectives are listed and are time related to ensure coverage and pace.

Number at the Heart: A significant amount of time is spent reinforcing number in order to build competency and ensure children can confidently access the rest of the curriculum.

Depth before breadth: The scheme support teachers to stay within the required key stage so that children acquire depth of knowledge in each topic. Opportunities to revisit previously learned skills are built into later blocks. Working together Children can progress through the schemes as a whole group, encouraging students of all abilities to support each other in their learning.

Fluency, reasoning and problem solving: The scheme develops all three key areas of the National Curriculum, giving children the knowledge and skills they need to become confident mathematicians.

Concrete Pictorial Abstract Approach: Research shows that all children, when introduced to a new concept, should have the opportunity to build competency by following the CPA approach. This features throughout the White Rose schemes of learning.

Planning should aim for all pupils to master the age group expectations of the National Curriculum by including rich, deep activities. Rapid graspers should not be accelerated through concepts, instead they should complete Challenge questions.

## **Calculations Policy**

At Reed First School we have adopted the Calculations Progression followed by White Rose which indicates the progression through Addition, Subtraction, Multiplication and Division in Years 1 – 6. By agreeing on the use of strategies and mathematical language, the children will be taught in a consistent way in all classes, developing their understanding as they progress through school. This will hopefully cause less confusion for the children and ensure they have the necessary strategies and scaffolding to enable them to solve mathematical problems.

Children will be encouraged to use the calculation strategies they are secure with, whether done mentally or using pencil and paper methods.

Reed First School's calculation Policy should be followed when teaching written methods.

**Ready to Progress Criteria** - non-statutory guidance from the Department for Education. This publication identifies the most important conceptual knowledge and understanding that pupils need as they progress from year 1 to year 6. These important concepts are referred to as ready-to-progress criteria and provide a coherent, linked framework to support pupils' mastery of the primary mathematics curriculum.

The ready-to-progress criteria are intended as goals for the end of the year. This publication can support long-term, medium-term and short-term planning, and assessment. A class teacher may choose to use the materials from the previous year group at the start of the year. Materials could be used to review, practice and consolidate learning from the previous year. PowerPoints, each one focusing on one of the ready-to-progress criteria in the DfE maths guidance for KS1 and KS2 can be found on the link below:

## **Lessons**

At Reed First school we teach National Curriculum Maths using The White Rose Scheme materials and planning. This enables teachers to deliver carefully planned progression and ensures consistency across the school. The White Rose scheme of learning is designed to support the development of reasoning and problem solving alongside fluency to ensure challenge and ambition for all pupils.

Pupils in the **Foundation Stage** are taught in whole class or small group adult led sessions throughout the week.

**In KS1**, Mathematics lessons may vary in length but will usually last for 40 minutes to an hour. In addition to this the class teacher will provide a daily fluency teaching session for all children.

**In KS2**, Mathematics is taught daily for at least an hour. In addition to this the class teacher provides a daily fluency teaching session for all children of 10 to 15 minutes.

‘Decisions about when to progress should always be based on the security of pupils’ understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.’ (National Curriculum)

If required, teachers may choose to include additional mathematics lessons in their weekly timetable. In addition to formal lessons, we value the opportunities there are to learn mathematics in a creative and/or cross curricular way, where problem solving, reasoning and numeracy are reflected in cross curricular ways.

## **Recording of Learning**

Pupils in Y1 have a blue square-paged Maths Exercise Book. Pupils in Y2-4 have a yellow square-paged Maths Exercise Book.

Learning is to be evidenced. This could be photographs, worksheets or teacher notes against planning. Not all learning will be recorded in books, learning can occur in other situations e.g., a game or class discussion and that evidence of this learning can be demonstrated in other ways e.g., photographs, teacher or learning support assistant observation notes. Presentation of mathematics books is to be consistent, age appropriate and show that pupils take pride in the appearance of their work and follow our presentation policy.

- All maths work will be completed in pencil.
- Numbers should all be formed starting at the top.
- IN KS1 the LO (WALT) and date will be recorded on a sticker pre-made by the teacher.
- In KS2 the short date will be recorded at the top of each new piece of work e.g., 05.07.22.
- In KS2 the learning objective will be either written underneath or stuck in underneath on a prepared sticker.
- IN KS2 the date and LO must be underlined with a ruler and a pencil.
- When sticking in question sheets/resources, these have to be trimmed to ensure they fit onto the page.
- When presenting work in maths numbers and symbols should be placed carefully one per box. If words or sentences are being used to explain or record, the base line of the squares

should be used as a guideline. A gap of one square should be maintained between question numbers and answers.

- Following feedback and/or marking a ruled line will be used to show where a piece of work has ended so that the rest of the page can be used for the next task.
- Tables, charts and diagrams should be drawn using a pencil and ruler and where applicable coloured in using coloured pencils
- Rubbers will only be used if the teacher deems it necessary. We believe that being able to see what has been corrected by a child is crucial in all subjects including maths to see thought processes and self-editing. Where mistakes are made or finding and fixing is taking place, children should take care to keep their corrections neat. One neat ruled line should go through what is being changed and the correction written above where possible.

## **Feedback and Marking**

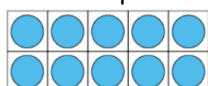
Marking of pupils' work is essential to ensure they make further progress. Immediate Intervention is essential. A pupil should leave each lesson feeling successful and any misconceptions or concerns to be addressed immediately. Marking is often done while a task is being carried out through discussion between child and teacher.

All teachers are to follow our Feedback and Marking Policy. Where appropriate, pupils should have the opportunity to self and peer mark their work. Marking in maths will follow the Reed First School Feedback and Marking policy, where the green dots will denote an error to fix. Ticks can be used to show correct answers. Pupils are given time to read teachers' comments and make corrections or improvements. Responses to marking are made as close to the work as possible, ideally at the start of the next lesson.

## **Resources**

Although the teachers have the flexibility to choose resources they feel are most effective to support the needs of all learners (differentiation) and those that ensure they achieve the aims of fluency, reasoning and problem solving, they should pay close attention and consideration to the Calculation Policy and other relevant documents. When using the White Rose Planning, teachers are able to choose resources which complement it and follow the Mastery Approach: Concrete, Pictorial and Abstract.

Teachers should consider consistent use of the same representations across year groups to help connect prior learning to new learning. For example: the use of tens frames and counters extended from year 1, where each counter represents 1 and a filled frame represents 10, to year 4 where each counter represents 100 and a filled frame represents 1,000.



## **Mathematics Classroom Environment**

Mathematics should be visible and accessible in all classrooms. Each classroom will have a stimulating learning environment which encourages children to be independent.

This could be an interactive display on the wall and/or a Maths table/Maths Station that has a bank of core resources that are age related. Key information, mathematical recording and ideas and key vocabulary will be added to on a week-to-week basis each term. Learning objectives, success criteria and key vocabulary will be clearly displayed and discussed.

- Relevant concrete apparatus should be readily available for all pupils to refer to
- Key vocabulary, pictorial and abstract representations should be visible for reference.
- Relevant sections of our Calculation Policy to be displayed (either directly from the policy document or another child friendly version e.g., pupils' poster).

## **Assessment**

Assessment should be regular and used to inform planning and to make the Teacher Assessment judgements at the end of each term.

Mathematics is assessed by the class teacher during lessons, through child-led conversations, observations and questioning during whole class and independent work and marking.

The teacher will use immediate feedback to target understanding and misconceptions promptly. These ongoing assessments will inform future planning and teaching. Lessons are adapted and short-term planning evaluated in light of these assessments.

**Formative Assessment** – Completed regularly to inform planning for example: Questioning, written work, end of block White Rose Assessments to check progress and identify gaps in knowledge and understanding.

**Summative Assessment** - Each Term: **White Rose Assessments end of term Autumn, Spring and Summer.** These materials are used alongside judgements made from class work to support teachers in making an assessment for each pupil in line with the assessment policy, to inform formative next steps and summative end point data.

End points for every child are tracked by the Headteacher who asks challenging questions of the teachers to understand the journey and next steps of every child. Actions agreed from each end point are monitored and checked to ensure impact.

To ensure pupils are 'ready' for the next year group's curriculum, teachers should ensure all pupils can complete the non-negotiable concepts. This is not at the expense of the rest of the curriculum but are the fundamental requirements to enable a child to progress. Non-negotiables should be taught and then practised during the 'Starter' section of the Maths lesson.

In the summer term of Year 4 there will be a Multiplication Tables Check. We have a clear system in place from Year 2 to ensure all children have instant recall of tables by the end of Year 4.

**SEND** We work on the basis that pupils are emerging, working at or at greater depth of the year group expectations. We have high expectations of all children and strongly believe that all children are equally able in mathematics. Some may take longer to grasp concepts and may need careful scaffolding or support (guided groups, pre-teaching, intervention group). Teachers may decide to use Early Work, Assembly time or C.I.L to provide additional interventions or support.

Mathematics lessons are inclusive to pupils with special educational needs and disabilities. SEND pupils should be accessing the main teaching of Mathematics using scaffolds and manipulatives. They may also have planned adult support or be paired with an appropriate peer. On some occasions it may be felt that pupils would be unable to access this and they may have a bespoke resource planned. Learning should be annotated to show which manipulatives and support were provided e.g., used dienes with adult support.

Differentiation occurs in the support and intervention provided to different pupils, not in the topics taught. There is no differentiation in content taught, but the questioning and scaffolding individual

pupils receive in class as they work through problems will differ, with higher attainers challenged through more demanding problems which deepen their knowledge of the same content. Pupils' difficulties and misconceptions are identified through immediate formative assessment and addressed with immediate intervention – ideally through individual or small group support. .

Where required, pupils' Support Plans will incorporate suitable objectives from the National Curriculum for Mathematics or Development Matters and teachers will keep these in mind when planning work.

**Pre-teaching** - Some children will find the pace of teaching hard to keep up with. Pre-teaching can support this, by exposing these children to key terms and concepts prior to the lesson. By making links back to earlier learning (either in the current or previous year group), children may be more able to use their memories of past experiences and see where in the sequence this new learning will fit. Pre-teaching can be particularly valuable for children with speech and language needs, or any child who has poor understanding of concepts, weak auditory memory or a limited vocabulary.

White Rose Maths has the motto #MathsEveryoneCan. They believe that everyone, no matter what their starting point is, can learn and improve at maths.

The small steps structure, the progression documents and the assessments that underpin the White Rose Maths curriculum will help teachers to identify gaps. Teachers can support all pupils to make progress, by using material or structures from earlier year groups.

Additionally, challenging activities may also be planned for children who are exceeding the curriculum expectations.

## **Times Tables**

Times Tables are a mathematics 'Non-negotiable' and must be taught and then practised. From Year 2, children are supported in the process through one to one sessions to check in on their recall progress. Children in Year 2 and checked verbally, children in KS2 have a written quiz, where they have 2 minutes to answer 40 questions related to the stage they are on. This culminates in a mixed quiz of all x tables. TT Rockstars is available for the practice of times tables. All times tables are to be learnt up to 12 x 12.

We teach times tables using the following progression:

**Year 1** Count in multiples of 2, 5 and 10. Recall and use doubles of all numbers to 10 and corresponding halves.

**Year 2** Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.

**Year 3** Recall and use the multiplication and division facts for the 3, 4 and 8 multiplication tables.

**Year 4** Recall and use multiplication and division facts for multiplication tables up to 12 x 12. By the end of Year 4, the children should know all of their times tables up to 12x12.

## **Home Learning.**

An overview of the Maths curriculum is available on the school's website. The termly curriculum topic letter, sent home by each class, also outlines the Maths topics to be covered.

Home learning for maths is set to support recall and rehearsal, using online resources and concrete practical activities and games.

Pupils from Year 1 to Year 4 have online access to Mathletics and TTRockstars. Times tables will be practised and tested weekly in school from Year 2.

Activities or tasks will be communicated in the Home School Communication book on a sticker. A class teacher may also assign games and activities to support learning at home on the Google Classroom page.

Last reviewed by teaching staff October 2026.