Curriculum Overview Statement: Maths

Intent

Mathematics is a dynamic and interconnected discipline that has evolved over centuries, providing solutions to some of history's most significant challenges. It plays a critical role in everyday life, powering advancements in science, technology, engineering, and finance, and is essential for many forms of employment. A high-quality mathematics education not only equips students with the foundational knowledge to understand the world around them but also fosters fluency, reasoning, problem-solving skills, and Oracy. By embedding Oracy in the teaching of mathematics, pupils have the opportunity to articulate their understanding, reason through problems, and communicate their mathematical thinking effectively, both with their peers and teachers.

Our mastery maths curriculum embodies the core school values of community, compassion and courage with Oracy at the forefront of what we do. Through collaborative learning activities and collective problem solving, our curriculum helps pupils understand the importance of teamwork and community. We encourage a growth mindset so that pupils are courageous in tackling their maths work and challenge is well matched to their abilities and we celebrate perseverance when learners are inspired to step out of their comfort zones. Compassion is nurtured through peer support systems and paired work on problem solving promotes empathy and understanding. Encouraging pupils to assist one another not only build resilience but fosters a supportive classroom environment where learners feel motivated and valued.

The National Curriculum for Mathematics aims for all pupils to:

1. **Develop fluency** by mastering core concepts through varied practice and progressing from concrete materials to pictorial representations and then to abstract symbols. Oracy is integrated to help pupils explain their thinking and deepen understanding.
2. **Build mathematical reasoning** by exploring patterns, making connections, and constructing logical arguments using a mix of concrete, pictorial, and abstract methods. Pupils engage in discussions to justify methods and refine their thinking, improving their use of precise mathematical language.
3. **Enhance problem-solving skills** by applying maths to a range of routine and complex problems, breaking them down into steps, and persevering with solutions. Talking through problems and sharing strategies helps pupils clarify their understanding and communicate their ideas effectively.

Mathematics is an interconnected subject, and pupils must be able to move fluently between concrete, pictorial, and abstract representations of mathematical ideas. While the curriculum is divided into distinct domains, pupils should make meaningful connections between concepts, enabling them to develop fluency, reasoning, and competence in problem-solving. Through Oracy, pupils can verbalise these connections, articulate how one concept links to another, and build a deeper understanding of how mathematical ideas fit together.

Speaking, listening and communication: learn to - learn through - learn about.

Implementation

At our federation, we use White Rose Maths as our basis for our curriculum. White Rose Maths is a leading educational programme designed to develop a deep and comprehensive understanding of mathematics. Adopted widely across primary and secondary schools, it aims to strengthen pupils' maths skills and enhance their problem-solving abilities through a mastery-based approach.

At the heart of White Rose Maths is the maths mastery philosophy, which prioritises depth of understanding over rapid progression. This ensures that pupils fully grasp key concepts before moving forward, allowing them to build a strong and secure foundation in mathematics. The programme aligns closely with the learning objectives across

different school years, offering a coherent and connected curriculum that supports continuity and progression throughout a pupil's education.

White Rose Maths is structured around a clear, coherent framework designed to support impactful teaching and learning through a mastery approach. Its structure typically includes the following key elements:

1. **Small, Focused Steps:** The curriculum breaks down mathematical concepts into manageable, incremental steps that build on one another. This helps pupils master each idea thoroughly before moving on to the next, preventing gaps in understanding.
2. **Coherent Progression:** White Rose ensures that learning objectives are carefully sequenced across year groups to promote clear progression. Each stage revisits and builds on prior knowledge, reinforcing fluency and deepening conceptual understanding over time.
3. **Concrete-Pictorial-Abstract (CPA) Approach:** The programme embeds the CPA model throughout lessons, encouraging pupils to first explore concepts with concrete manipulatives, then represent them pictorially, and finally move to abstract symbols and calculations. This progression supports varied learning styles and strengthens comprehension.
4. **Emphasis on Fluency, Reasoning, and Problem Solving:** Lessons are designed not only to build procedural fluency but also to develop pupils' reasoning skills and ability to solve a range of problems. This three-pronged focus ensures pupils can apply their maths knowledge in different contexts.

Lesson Structure

Date and LO in books Complete next steps	One Page Arithmetic	Teaching input	Knowledge Practise	Marking and Corrections	Additional Knowledge Practise/ Challenge Questions
Maximum 5 minutes	*10 minutes*	*10-15 minutes*	*15 minutes*	*5 minutes*	*10 minutes*

Date and LO

- Short date written in the top left corner and underline – e.g., 09.09.24. Each **digit** will be in one box.
- Years Reception, 1 and 2 – Learning objective printed on sticker/typed and printed.
- Years 3, 4, 5 and 6 – Learning objective written underneath and underlined.

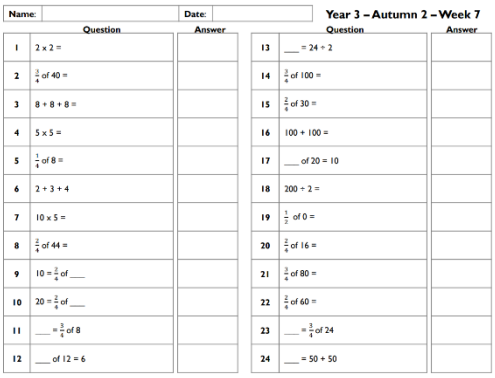
Space within maths books should be utilised well. Staff need to think about the sizing of the worksheets provided. Pupils need to use pages for more than one session where Learning by Questions has been used as the knowledge practise. This should be done by drawing a line, with a ruler, under the previous work and then starting the new date and LO underneath.

One Page Arithmetic

Children engage in daily arithmetic work in the form of a quiz or question set (different questions each day).

The one page arithmetic is part of our retrieval curriculum and it is designed to recap previous arithmetic learning as well as extend current learning. It should be used weekly to reinforce key skills, along with flashback 4.

- Questions should be from the One Page Arithmetic document.
- There is a set of questions for each week, and each half term, for each year group.
- Children need to write the question they are answering in their maths book. (KS2)
- Pupils are marking their questions in purple pens.
- Children are answering questions for the week. They are improving their score or their time to complete the questions each week.



Name: Date: **Year 3 – Autumn 2 – Week 7**

	Question	Answer		Question	Answer
1	2 × 2 =		13	___ = 24 ÷ 2	
2	$\frac{1}{4}$ of 40 =		14	$\frac{3}{4}$ of 100 =	
3	8 + 8 + 8 =		15	$\frac{2}{4}$ of 30 =	
4	5 × 5 =		16	100 + 100 =	
5	$\frac{1}{4}$ of 8 =		17	___ of 20 = 10	
6	2 + 3 + 4		18	200 ÷ 2 =	
7	10 × 5 =		19	$\frac{1}{2}$ of 0 =	
8	$\frac{2}{4}$ of 44 =		20	$\frac{2}{4}$ of 16 =	
9	10 = $\frac{1}{4}$ of ___		21	$\frac{3}{4}$ of 80 =	
10	20 = $\frac{1}{4}$ of ___		22	$\frac{2}{4}$ of 60 =	
11	___ = $\frac{3}{4}$ of 8		23	___ = $\frac{3}{4}$ of 24	
12	___ of 12 = 6		24	___ = 50 + 50	

Flashback 4

Every maths lesson starts with an opportunity for pupils to retrieve, revisit and consolidate prior learning - this is called our Flashback 4. This selection of questions, compiled by White Rose Maths, are based on:

- What children learnt yesterday;
- What children learnt last week;
- What children learnt two to three weeks ago;
- What children learnt last term or last year.

This structured approach supports long-term retention and builds confidence by encouraging regular practice of essential skills. It's widely used in classrooms to reinforce learning in a manageable, consistent way.

Teaching Input

The teaching input should provide pupils with the tools they need to complete the learning objective. Teaching inputs should be as practical and engaging as possible. Inputs are taught to a mixed age classes as one full class input.

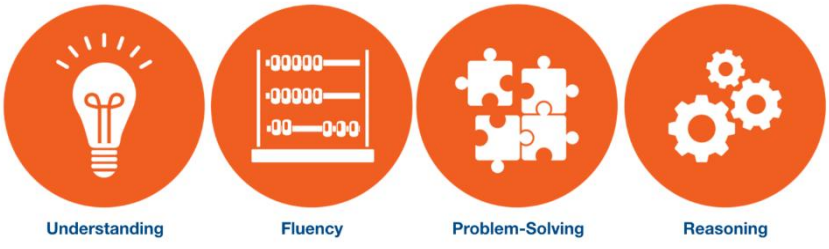
Input strategies:

- ➔ Practical resources to model and practise
- ➔ Whiteboard work
- ➔ White Rose PowerPoint
- ➔ Songs
- ➔ Games
- ➔ Rhymes
- ➔ Paired work
- ➔ 'I do, you do'
- ➔ Making a poster with steps to follow (e.g. calculation methods etc)

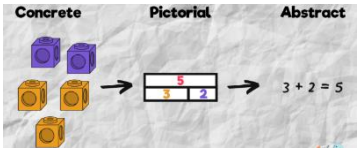
The teaching input should include examples of fluency, reasoning and problem solving.

Knowledge Practise

The knowledge practise should ensure that pupils have chance to practise fluency, reasoning and problem solving within each lesson. **There should NOT be stand-alone lessons with the LO as 'Problem solving'.**



Practical work should be photographed and stuck into maths books alongside the children's work or on Seesaw for EYFS/KS1 pupils. This evidence of practical work and using Concrete, Pictorial and Abstract working is key.



Teacher should use the following places to get materials for Knowledge Practise:

- ➔ White Rose Scheme of Learning
- ➔ Learning by Questions
- ➔ Testbase

Learning by questions is used at KS2 as the knowledge practise, alongside key learning for WRM. The Learn by Questions sets are aligned to the White Rose maths scheme and methodology. Pupils/staff should write 'Learning by Questions' in the maths book and the step being covered.

Marking and Feedback

Pupils should be marking their work alongside staff, in **Purple Pens**, and correcting as they mark. Once work has been marked questions from the challenge boxes (more information below) should be completed or additional tasks with an adult to consolidate learning.

Staff should review the work at the end of the lesson and set short challenges and supporting work (next steps) to be completed by the pupils in the following lesson. Staff should also be aware of marking Literacy skills within maths such as correct spellings for key vocabulary as well as SPaG elements when reasoning.

LO should be highlighted following the Marking and feedback policy.

In all ages, digit formation should be a real focus to ensure that digits are formed correctly and as shown below.

Classroom Environment

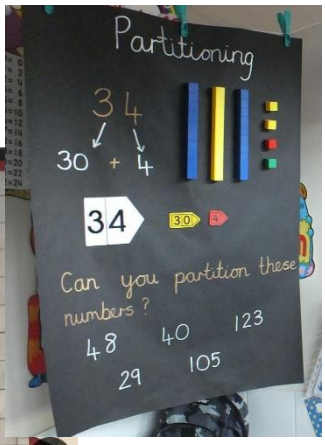
Displays

Maths displays should be clear but engaging. The display should show:

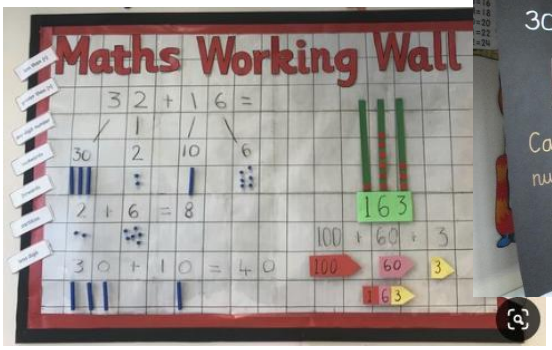
- ➔ Current Unit Title
- ➔ Key Maths symbols and vocabulary
- ➔ A3 Knowledge organiser
- ➔ Calculation methods taught
- ➔ TTRS Posters

Resources for learning

In your classroom, there should be an area with manipulatives and resources to support maths learning. This should include the following – in ALL AGE CLASSES:



- ➔ Laminated 100 squares
- ➔ Laminated Number lines
- ➔ Cubes
- ➔ Counters
- ➔ Place value resources
- ➔ Rek and Reks
- ➔ Laminated Part Whole Models
- ➔ Laminated Number formation cards



Challenge Area

As part of the maths area, there should be a clearly labelled challenge area. These areas should be available with challenges for pupils to complete. There should be a clearly labelled area for each year group in your class. These can be completed as part of the lesson.

EYFS Maths

- Maths should be taught to EYFS children at least 2/3 times a week.

- Maths learning should ALWAYS be accessible through continuous provision (see below for details).
- This should be evidenced on Seesaw in a Maths Curriculum Folder.
- Once per week, children should record their learning in their squared maths book. This is to gain an insight into their learning and see progress over time. This should be a short independent written activity.
- Number Blocks should be used as a tool to enhance and support maths concepts and learning. This should be evident in the classroom through displays and provision.

Children in reception will have access to the White Rose Scheme for Teaching and Learning as well as provision enhancements and activities.

Seesaw Evidence

When uploading pictures and videos to Seesaw please ensure that you are detailing the following:

- Was the learning independent?
- How did the learning come about?
- Have you extended the learning?
- Can you record the child telling you what they have done?

Adults can probe with good questioning during this.

- See question prompts based on blooms taxonomy.

Can you tell a friend? Can you tell me what you remember about...?
Can you ask a question? Can you show a friend?
Can you show me another way? Can you prove it?
Can you spot the mistake? Can you see a pattern?
What do you think will happen? Do you agree? Why not/Why?
Are there any other ways? Can you show me using...?

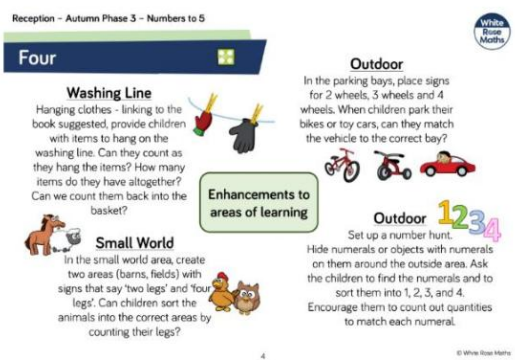
Continuous Provision

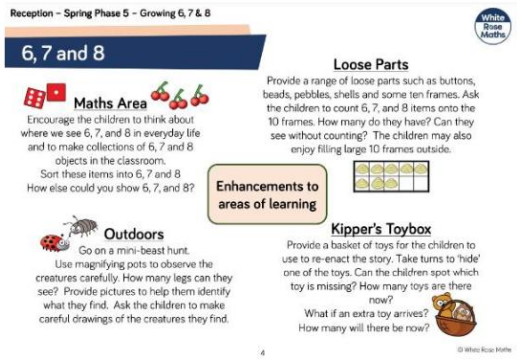




Provision Enhancements

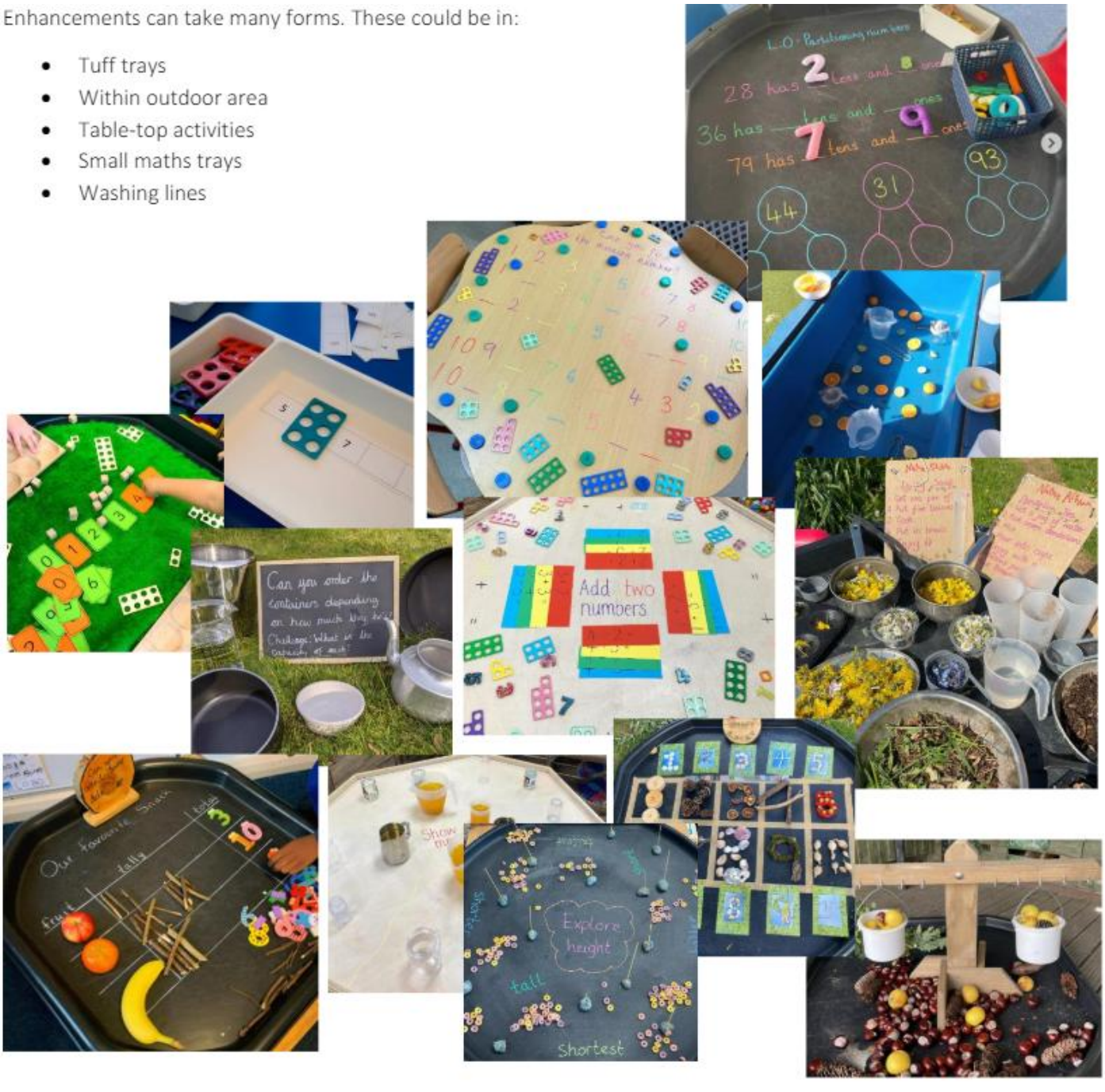
White Rose planning provides activities to enhance your provision areas. These should be used weekly and will consolidate current learning based on the white rose curriculum.





Enhancements can take many forms. These could be in:

- Tuff trays
- Within outdoor area
- Table-top activities
- Small maths trays
- Washing lines



Assessment

Summative assessment will be completed each term using the 'Becoming a Mathematician' document.

This document is to highlight (as per the marking and feedback policy) whether a pupil has met the learning objective or if they are working towards. If met at a later date, staff are to re-highlight and date.

Formative assessment will be completed on an ongoing basis using marking and feedback of written work as well as learning by questions diagnostics.

EYFS/KS1 Pupils who are consistently working below, should access pre-teaching or small group teaching of mathematical concepts. This should then feature within provision in the classroom to support retention.

KS2 Pupils who are consistently working below, should access previous year groups Learning by Questions units outside of maths lessons to support bridging the gaps in learning as well as additional time on Numbots and TTRS.

Numbots and TTRS

All pupils should have access to a TTRS and Numbots account.

Reception, Year 1 and Year 2 pupils should be accessing Numbots between 2-3 times per week – in and out of school.

This works on number and place value facts as well as addition and subtraction.

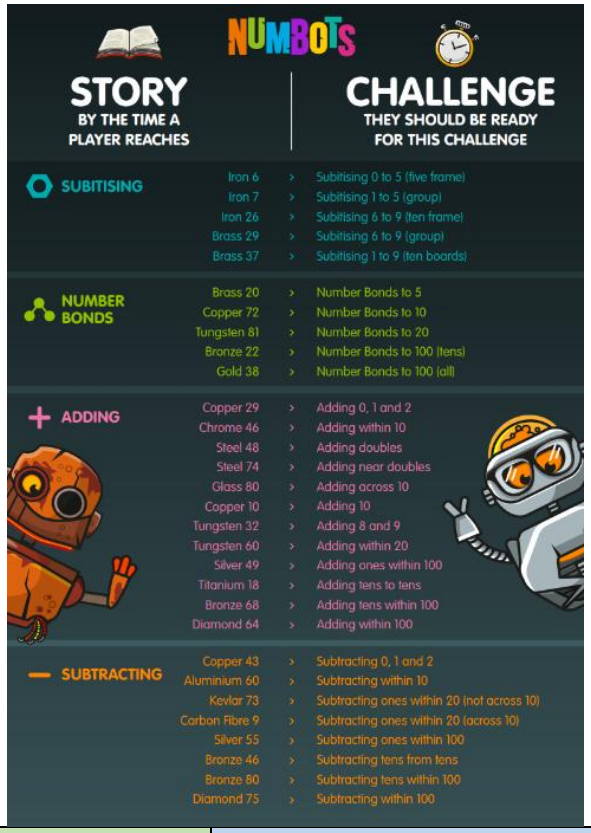
Year 3, Year 4, Year 5 and Year 6 should be accessing TTRS between 2-3 times per week – in and out of school.

This works on Multiplication and Division facts.

Numbots

Numbots has two elements – Story and challenge.

Story mode scaffolds the children working through mathematical skills such as number bonds, doubles and addition and subtraction skills.



No,	Key Skill	Example
1	Adding and subtracting 1 or 2 within 10	1 + 3, 8 – 2
2	Number bonds to 5	3 + ? = 5
3	Doubles within 10 (i.e. up to 5+5)	4 + 4
4	Adding and subtracting 1 and 2 within 20	17 + 2, 11 – 1
5	Number bonds to 10	3 + ? = 10
6	Adding and subtracting 10 within 20	3 + 10, 16 – 10
7	Doubles within 20 (i.e. up to 10+10)	8 + 8
8	Adding two 1-digit numbers	5 + 7
9	Number Bonds to 20	8 + ? = 20
10	Subtracting 1-digit numbers within 20	14 – 6
11	Adding and subtracting 1, 2 and 10 within 100	1 + 74, 51 – 2, 38 + 10
12	Adding and subtracting 2-digit numbers to/from multiples of 10	20 + 64, 83 – 20
13	Addition by bridging a multiple of 10	25 + 6, 47 + 5
14	Subtraction by bridging a multiple of 10	25 – 6, 42 – 5
15	Number bonds to 100	52 + ? = 100
16	Using compensation to add and subtract within 100	35 + 19, 35 – 19
17	Adding by partitioning two 2-digit numbers	64 + 25, 10 + 64
18	Subtracting by partitioning two 2-digit numbers	64 – 23, 47 – 31
19	Adding any two 2-digit numbers	63 + 56, 63 + 58
20	Subtracting any two 2-digit numbers	76 – 43, 76 – 47

TTRS

	Autumn Term	Spring Term	Summer term
Year 2	-	10 x tables Garage	2x, 5x, 3x tables Garage
Year 3	Garage mode focus – following Quick Quiz Progression. Learning specific times tables and increasing speed/fluency.	Garage mode focus – following Quick Quiz Progression. Learning specific times tables and increasing speed/fluency.	Garage mode focus – following Quick Quiz Progression. Learning specific times tables and increasing speed/fluency.
Year 4	Garage mode focus. Learning specific times tables and increasing speed/fluency.	Add sound checks into use to practise MTC check.	BIG focus on soundchecks and increase TTRS time to daily.
Year 5/6	Focus on completing monthly gigs and keeping up soundcheck scores.	Studio focus to improve speed within tables. GD children can be set times tables above 12x.	Studio focus to improve speed within tables. GD children can be set times tables above 12x.

Impact

White Rose Maths supports impactful teaching and learning by emphasizing mastery, ensuring pupils gain a deep and lasting understanding of mathematical concepts rather than just surface-level skills. This reduces the need for reteaching and builds pupil confidence. Its carefully sequenced curriculum revisits concepts regularly, helping to establish strong foundations so pupils can confidently tackle more complex problems. The concrete-pictorial-abstract (CPA) approach, combined with diagnostic assessments, allows teachers to address diverse learning needs with targeted support and multiple ways to engage with the material.

At my school, this approach has led to measurable improvements in pupil progress and attainment across all year groups. Pupils demonstrate stronger fluency and deeper reasoning skills, which is reflected in improved assessment outcomes and increased engagement in lessons. The focus on oracy and collaborative problem-solving has also enhanced communication skills and boosted confidence in maths discussions. Teachers feel more equipped and supported through White Rose's resources and training, resulting in more consistent and effective maths teaching throughout the school. Overall, the implementation of White Rose Maths has contributed significantly to raising standards and fostering a positive, growth-oriented maths culture within the school.