Woodlands Primary School

MATHEMATICS POLICY & STATEMENT OF INTENT

Status:	Current	
Date Adopted by Governing body:	20th October 2021	
Created by Jess Martindale	15th January 2025	
Review by Curriculum Committee	March 2025	2 years

Woodlands Primary School Mathematics Policy

Statement of Intent

The 2014 changes to the national curriculum in mathematics set out three main aims: to become fluent in the fundamentals of mathematics; to reason mathematically and to solve problems. At Woodlands we want a mathematics curriculum which is accessible to all and will maximise the development of every child's ability and academic achievement, therefore we want our children to develop deep and sustainable maths subject knowledge. We achieve this by focusing teaching and learning on:

- Fluency – mental agility, slick written methods and clarity of language.
- Problem solving and reasoning – pupils develop a range of skills that allow them to 'crack' into and solve a range of problem
- Teaching for mastery – all lessons are planned and delivered with the 5 principles of mastery in mind.

Teaching for mastery is underpinned by 5 key principles:

Cohesion: Sufficient time is spent on well planned sequences to ensure that key concepts are developed and deeply embedded before moving on.

Representation and structure: Mathematical concepts are explored and understood through strong models and images such as Base 10, 10-grids, numicon, block modelling, cuisenaire.

Fluency: Factual knowledge (e.g. number bonds and times tables), procedural knowledge (e.g. formal written methods) and conceptual knowledge (e.g. of place value) are taught in a fully integrated way and are all seen as important elements in the learning of mathematics. Children are able to efficiently select the best method from a variety that they have developed to solve problem. At Woodlands, we use Big Maths to ensure daily fluency opportunities.

Variation: Conceptual variation and procedural variation are used extensively throughout teaching, to present the mathematics in ways that promote deep, sustainable learning. This is especially evident in the practice that children are given in each session.

Deep mathematical thinking: The reasoning behind mathematical processes is emphasised. Teacher/pupil interaction explores in detail how answers were obtained, why the method/strategy worked and what might be the most efficient method/strategy.

We intend for our pupils to be able to apply their mathematical knowledge to science and other subjects. We want children to realise that mathematics has been developed over centuries, providing the solution to some of history's most intriguing problems. We want them to know that it is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. We encourage children to have mathematical confidence so they can challenge ideas presented by peers and adults alike, so they can verbalise their ideas and extend their own thinking. Our math lessons develop children's social skills by teaching them to actively listen to what has actually been said and to respond appropriately and build on other's ideas. We guide children to look at problems from different angles and know that there may be more than one way to approach a problem. We celebrate the difficulties and mistakes made, to help push children's learning on, as well as developing growth mind set. As our pupils progress, we intend for them to be able to understandthe world, have the ability to reason mathematically, have an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

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How is this implemented across the school?

At our school teachers must have high expectations of children and promote and instil a positive mind-set about Mathematics. Mathematics is taught daily and within our lessons:

- Teachers reinforce an expectation that all children are capable of achieving high standards in Mathematics.
- The large majority of children progress through the curriculum content at the samepace.
- Differentiation is achieved by emphasising deep knowledge and through individual support and intervention.
- Teaching is underpinned by methodical curriculum design and supported by carefully crafted lessons and resources to foster deep conceptual and procedural knowledge.
- Practice and consolidation play a central role. Carefully designed variation within this builds fluency and understanding of underlying mathematical concept.
- Teachers use precise questioning in class to test conceptual and procedural knowledge and assess children regularly to identify those requiring intervention, so that all children keep up.

Knowledge Acquisition and Lesson Design

The White Rose Education Fluency Bee programme – Years 1, 2, 3 and 4

Fluency Bee is a structured teaching programme designed to give children confidence with numbers through varied and frequent practice. It is a way to build number sense and develop a range of core skills in maths.

The best way to develop maths fluency is frequent practice. Fluency Bee consists of a daily 15-minute lesson separate from the main maths lesson. Fully animated PowerPoint slides bring core skills to life, with teaching notes that emphasise key learning points and highlight important connections.

Fluency Bee can be used flexibly depending on the needs of our children. It is suitable for use with the whole class or small groups of targeted children to build confidence with number.

Engagement: Fluency Bee provides a hands-on and practical approach to number sense. There are lots of games and activities. Frequent, fun and varied practice helps core skills become embedded.

Concrete – pictorial – abstract (CPA): The programme uses a CPA approach throughout to develop a secure understanding of mathematical concepts. Concrete manipulatives and pictorial representations are used to support children to make links, build visual images and make sense of abstract calculations.

Mathematical talk and reasoning: Frequent opportunities for mathematical talk are provided. Familiar characters encourage children to explore common misconceptions and explain their reasoning.

Fluency in Years 5 and 6

At years 5 and 6 level students apply skills to the rigor of the upcoming SAT arithmetic assessment. . Through assessment and identification of gaps in knowledge the teachers write a bespoke program of fluency to meet the needs of the students.

Main Math Lessons Years 1-6

To ensure whole school consistency and progression, the school follows the White Rose Mathematics scheme, it ensures there is a consistent, progressive approach – which addresses the five key elements of mastery. The White Rose curriculum is designed using small steps, meaning each lesson leads on to the next. Therefore, if a child is secure in their understanding of a lesson or concept, they are ready for the next step in their learning. As the student's progress through the school they will build on previous learning: being familiar with the models, apparatus, sentence stems and strategies taught, so they can continue to grow in confidence and independence. This maximises learning time.

Teacher Lead Element of Math Lessons

The teacher led element of math lessons will involve deep mathematical thinking, modelling, discussions, practice and games. We aim to ensure that problem solving and reasoning are real life examples that the children can relate to. We believe that all children, regardless of ability, can access problem solving through whole class teaching. We use this opportunity to develop their communication skills, resilience and extend their learning. In this time you will see children engaged and chatting enthusiastically about maths whilst challenging each other. Teachers will use language like convince me, prove it, show me, give me an example – all which prompt children to think deeply about their learning and by modelling the use of mathematical sentence stems they will be able to communicate their reasoning with confidence.

Retrieval- Within our main Maths session we will also use **Flash Back 4** to revise previous concepts - this is normally used at the beginning of the main Maths session but can be used at other points during the lesson.

Remainder of Math Lesson

The remaining part of the session will be used for practice, application and intervention. All children may be playing the same game or completing the same activity. Children may require further support and scaffolding or may be challenged through extension activities and high-level reasoning.

Teachers use formative assessment and student evaluation within lessons, if a pupil fails to grasp a concept or procedure, this is identified quickly and early intervention (during the lesson and before the start of the next lesson) ensures the pupil is ready to move forward with the whole class in the next lesson. Each teacher assesses the knowledge at the end of each unit (using the White Rose End of Unit Assessments) and addressing any gaps in the class. Where children have significant learning gaps in number, they are identified for intervention (listed below).

Maths: Early Years Foundation Stage

At Woodlands we use the White Rose Hub Scheme of work for EYFS1 and EYFS2 (Reception) which break the year down into blocks and from blocks into easy, logical steps. We use books, games, rhymes, daily routines, and outdoor activities to nurture an enjoyment of the subject from an early age. We let children explore mathematical concepts with curiosity and without a fear of making mistakes.

EYFS 1

Our EYFS schemes of learning include:

Our teachers deliver a curriculum that embeds mathematical thinking and talk. The notes and guidance sections give an overview of the content, detailing key vocabulary to introduce, relevant subject knowledge and advice on progression. The guidance also includes key questions and possible sentence stems to support children's mathematical talk and reasoning skills.

Adult-led learning: this section provides suggested activities that can be delivered to the whole class or in small groups. These fun, engaging and seasonally relevant activities help to cement mathematical knowledge.

Continuous provision: this section provides suggested ways that continuous provision could be used or enhanced to consolidate children's learning from each block.

Reception

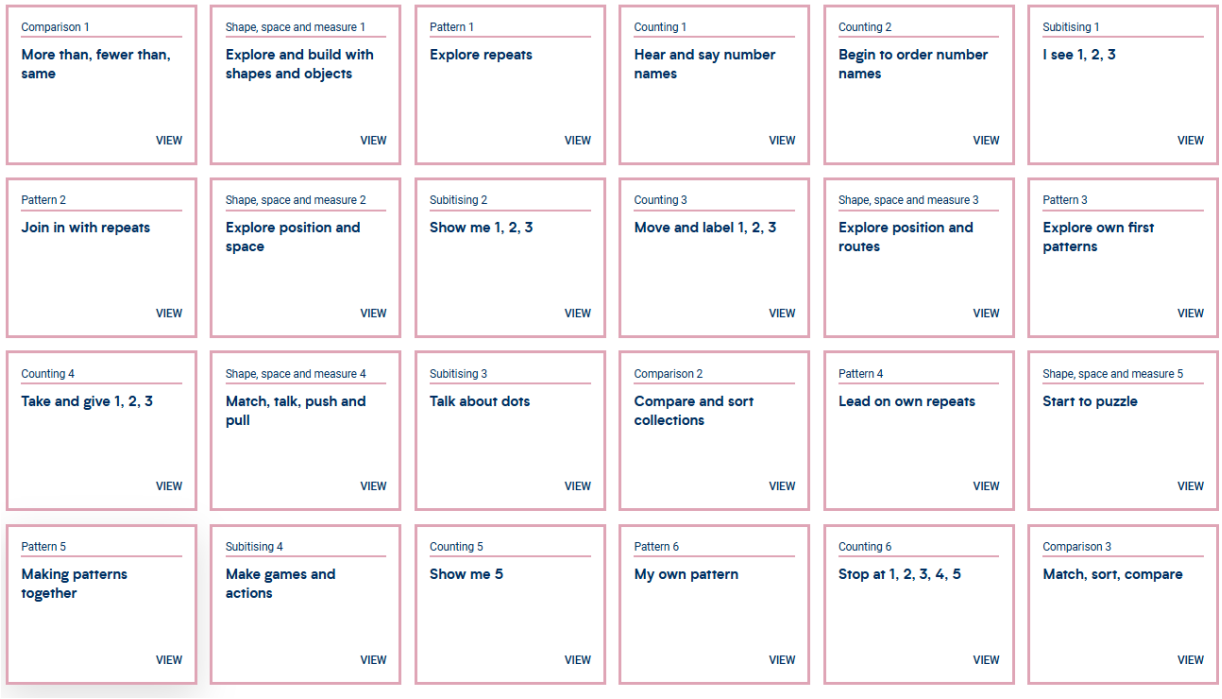
Reception age children learn best when learning is fun, hands-on and practical.
Our reception class uses the White Rose maths scheme, an Educational Programme for Mathematics and introduces counting, number patterns and simple number problems in a natural, supportive way.

It uses games and songs and other learning methods to help children explore numbers and discover how fascinating they can be.
By doing so, we give Reception age children the confidence to develop crucial skills and knowledge.

- The schemes cover the statutory framework for the national curriculum EYFS programme of study and align with non-statutory guidance
- Reception age children are supported to explore counting, money, shape, patterns, objects, position, sequence and other core foundations of numeracy development
- Each small step links to relevant rhymes and books to encourage cross-curricular learning
- All resources are fun, colourful and easy to follow, and encourage mathematics learning through creative play
- Continuous provision ideas are used to enhance and to consolidate children's learning from each block.

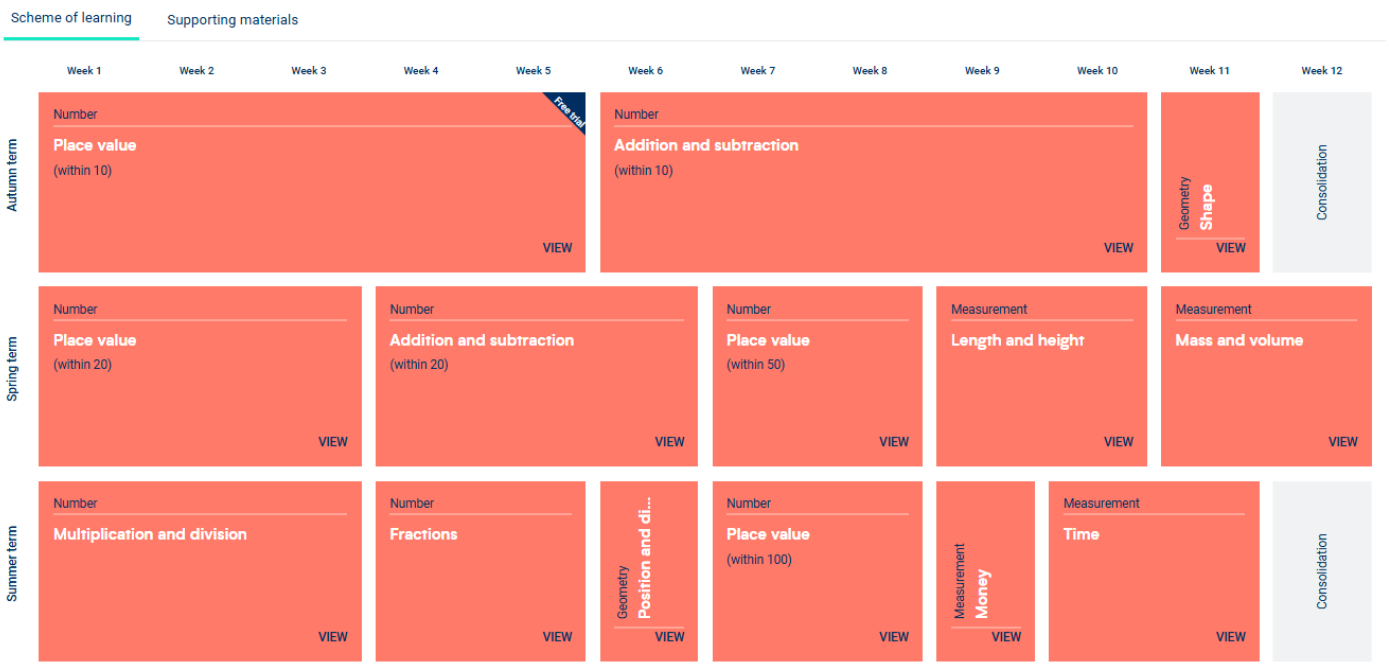
Programs of study

Nursery EYFS1

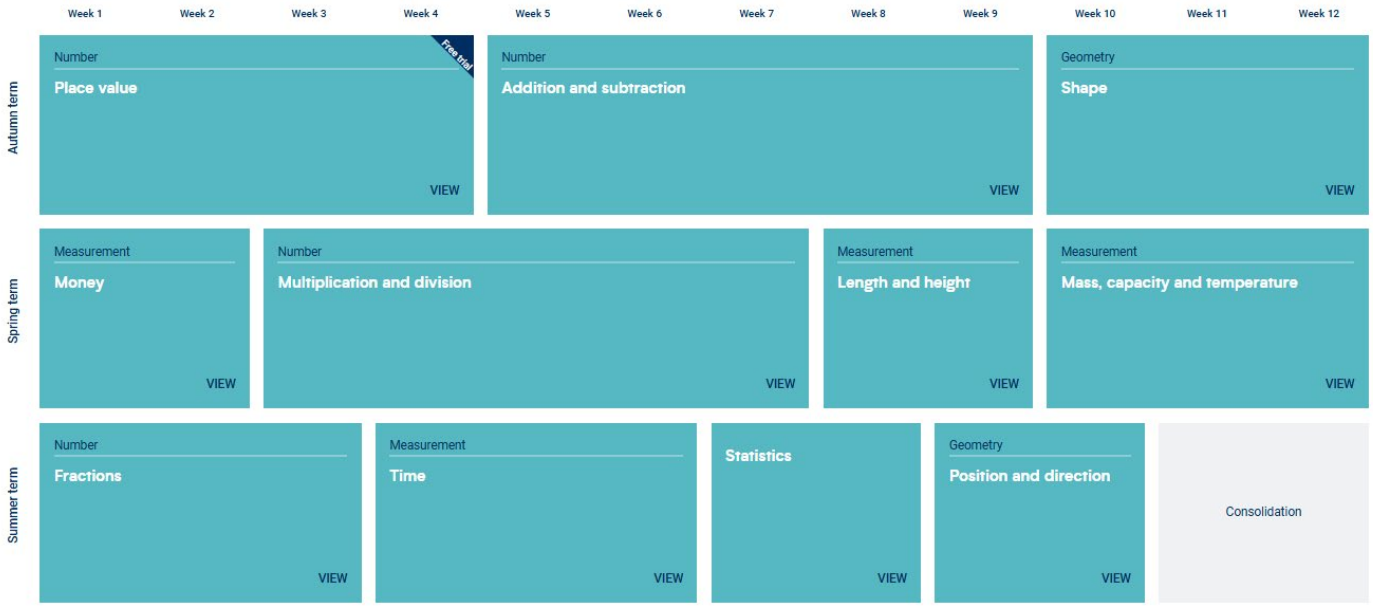


Reception

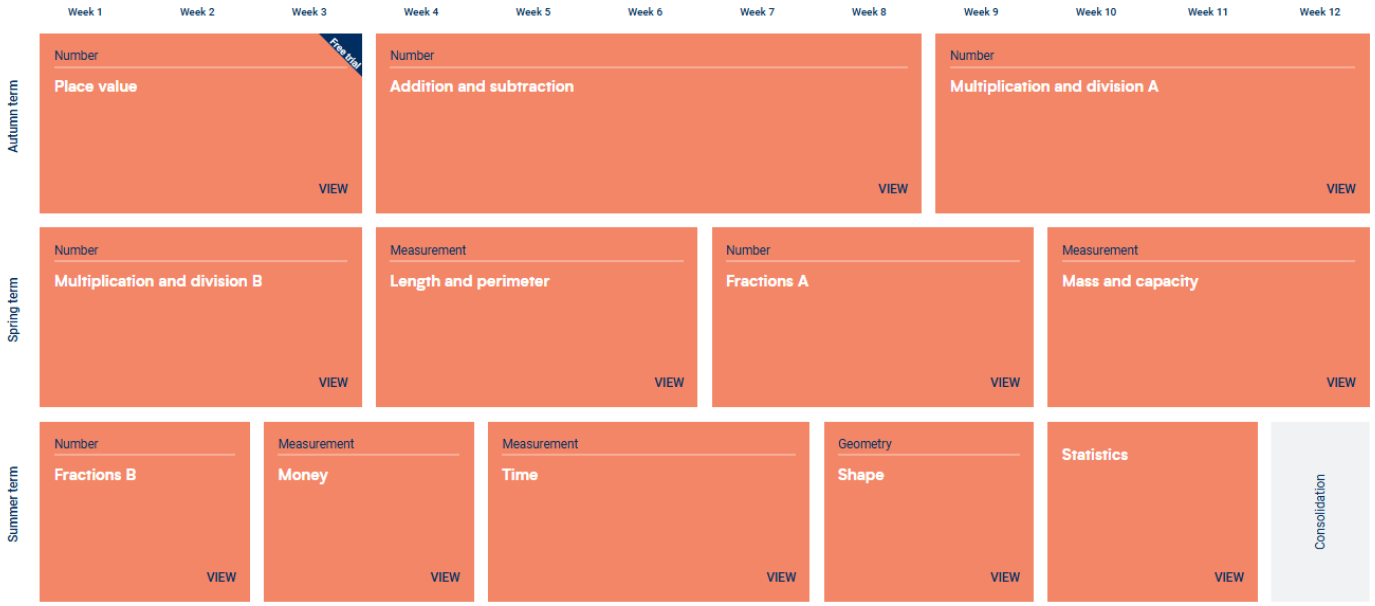
Year 1


Scheme of learning
Supporting materials
Week 1
Week 2
Week 3
Week 4
Week 5
Week 6
Week 7
Week 8
Week 9
Week 10
Week 11
Week 12
Autumn term
Number
Place value
(within 10)
VIEW
Free trial
Number
Addition and subtraction
(within 10)
VIEW
Geometry
Shape
VIEW
Consolidation
Spring term
Number
Place value
(within 20)
VIEW
Number
Addition and subtraction
(within 20)
VIEW
Number
Place value
(within 50)
VIEW
Measurement
Length and height
VIEW
Measurement
Mass and volume
VIEW
Summer term
Number
Multiplication and division
VIEW
Number
Fractions
VIEW
Geometry
Position and di...
VIEW
Number
Place value
(within 100)
VIEW
Measurement
Money
VIEW
Measurement
Time
VIEW
Consolidation

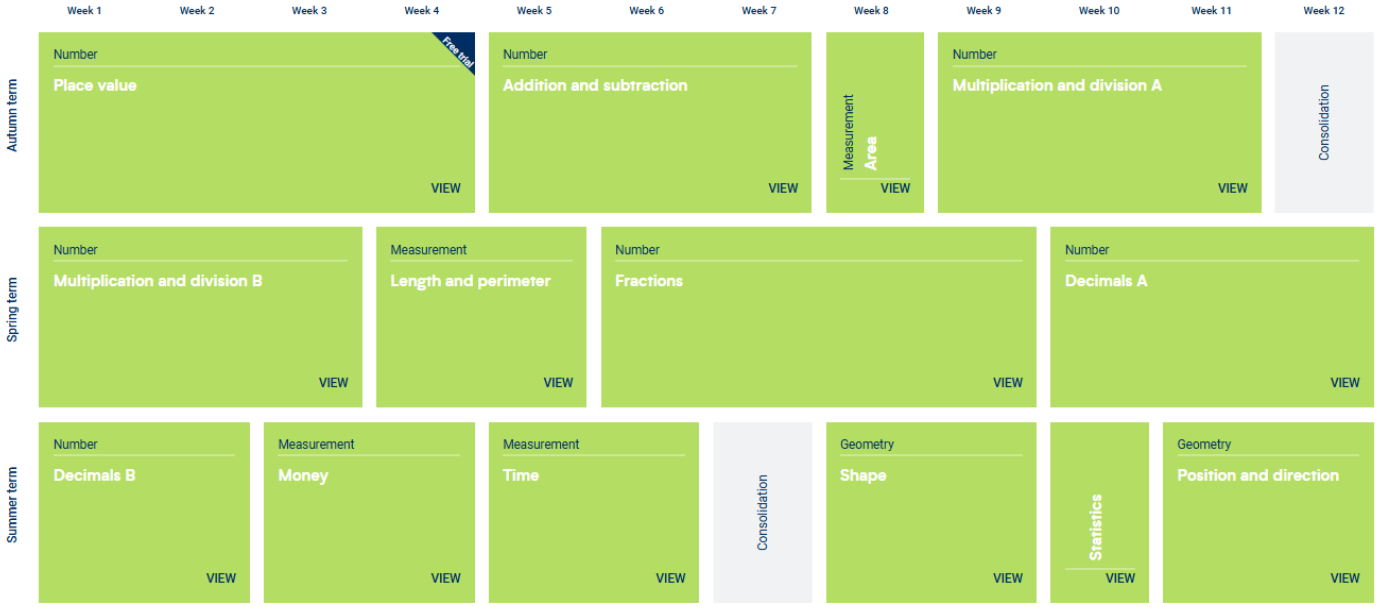
Year 2


Week 1
Week 2
Week 3
Week 4
Week 5
Week 6
Week 7
Week 8
Week 9
Week 10
Week 11
Week 12
Autumn term
Number
Place value
VIEW
Free trial
Number
Addition and subtraction
VIEW
Geometry
Shape
VIEW
Spring term
Measurement
Money
VIEW
Number
Multiplication and division
VIEW
Measurement
Length and height
VIEW
Measurement
Mass, capacity and temperature
VIEW
Summer term
Number
Fractions
VIEW
Measurement
Time
VIEW
Statistics
VIEW
Geometry
Position and direction
VIEW
Consolidation

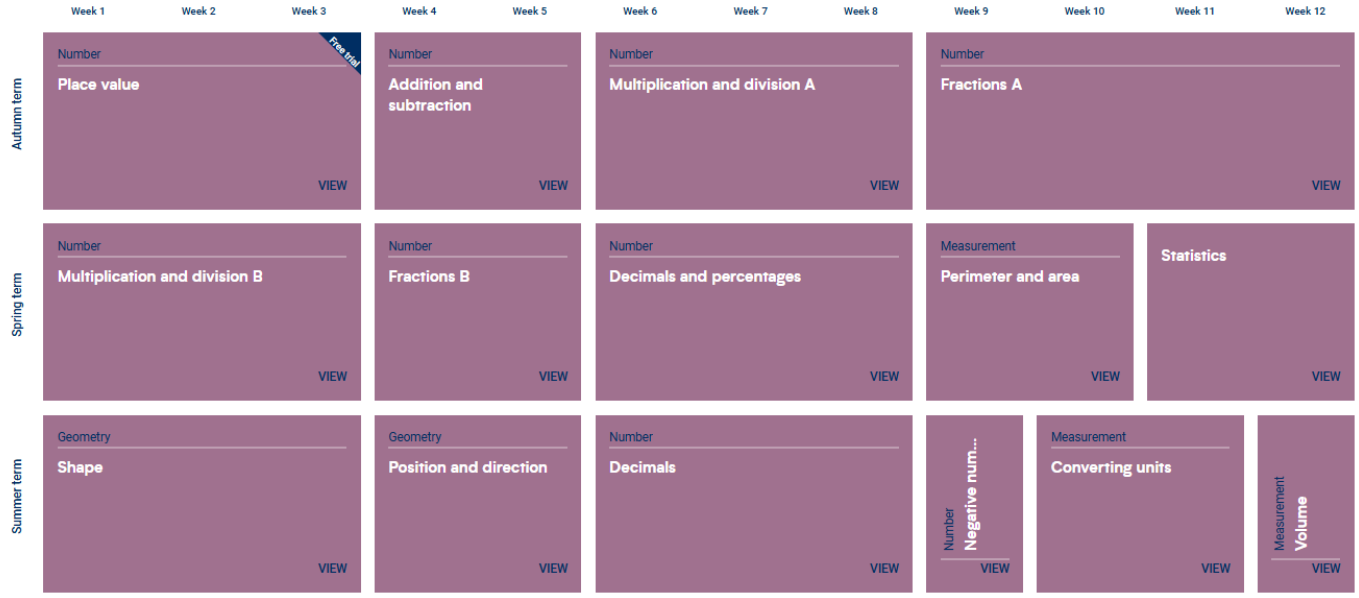
Year 3


Week 1
Week 2
Week 3
Week 4
Week 5
Week 6
Week 7
Week 8
Week 9
Week 10
Week 11
Week 12
Autumn term
Number
Place value
Free trial
VIEW
Number
Addition and subtraction
VIEW
Number
Multiplication and division A
VIEW
Spring term
Number
Multiplication and division B
VIEW
Measurement
Length and perimeter
VIEW
Number
Fractions A
VIEW
Measurement
Mass and capacity
VIEW
Summer term
Number
Fractions B
VIEW
Measurement
Money
VIEW
Measurement
Time
VIEW
Geometry
Shape
VIEW
Statistics
VIEW
Consolidation

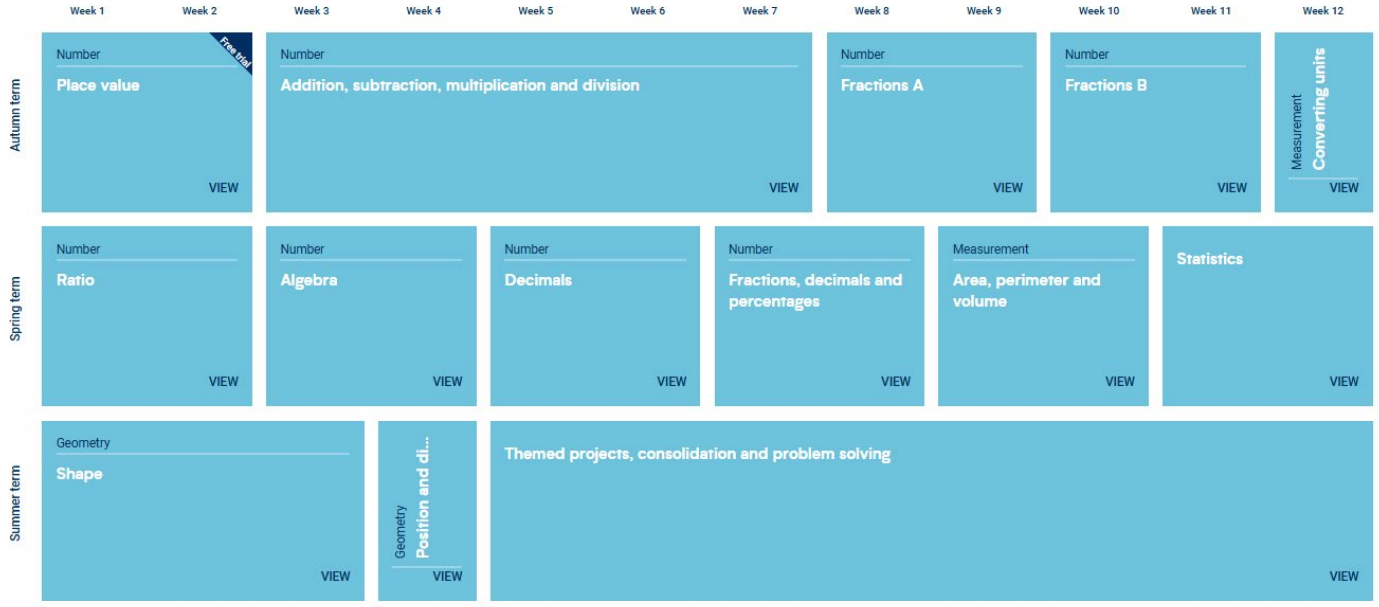
Year 4


Week 1
Week 2
Week 3
Week 4
Week 5
Week 6
Week 7
Week 8
Week 9
Week 10
Week 11
Week 12
Autumn term
Number
Place value
Free trial
VIEW
Number
Addition and subtraction
VIEW
Measurement
Area
VIEW
Number
Multiplication and division A
VIEW
Consolidation
Spring term
Number
Multiplication and division B
VIEW
Measurement
Length and perimeter
VIEW
Number
Fractions
VIEW
Number
Decimals A
VIEW
Summer term
Number
Decimals B
VIEW
Measurement
Money
VIEW
Measurement
Time
VIEW
Consolidation
Geometry
Shape
VIEW
Statistics
VIEW
Geometry
Position and direction
VIEW

Year 5



Year 6



Maths Environment

1. **Children should not be grouped according to their 'ability'** as this can change from one lesson to the next. Instead, seating should be flexible so that any children that you need to work with or need additional support can move to work with you.

2. Teachers will develop Maths Working Walls which will show:
    - The Unit being taught
    - Learning Objectives
    - Examples of representation and structure (e.g. ten frames, 100 squares, numicon)`
    - Mathematical Vocabulary
    - Sentence Stems
    - Examples of shared teaching – for children to reference
    - Student work examples

3. Students should have access to manipulative materials: any concrete objects that allow students to explore an idea in an active, hands-on approach.

Books

Each lesson has a LO and short date.

As much as possible work is to be written up into squared books by the children in the book. Rich tasks and problems should be stuck into the book before attempting.

Children will self-assess at the end of each lesson – KS1 – traffic lights, LKS2 – ticking a box provided in LO or emoji, UKS2 WWW (What Went Well) EBI (Even Better If)

For further guidance on feedback and assessment, see the policy.

Times Tables

At Woodlands have high expectations of children mastering their times tables at the end of Year 4. Alongside the CLIC program we have a program of study for introducing and teaching the times tables up to 12 x 12

National Curriculum

Year 2	Year 3	Year 4	Year 5 & 6
2 times tables 10 times tables 5 times tables	3 times tables 4 times tables 8 times tables	6 times tables 7 times tables 9 times tables 11 times tables 12 times tables	Continue to practise all times tables regularly

Please refer to times table policy for calendar of teaching.

Formal Interventions

Numbers Count

Number Stack – Years 2, 3, 4 ,5

Impact

The school has a supportive ethos and our approaches support the children in developing their collaborative and independent skills, as well as empathy and the need to recognise the achievement of others. Students can underperform in Mathematics because they think they can't do it or are not naturally good at it. The White Rose Curriculum addresses these preconceptions by ensuring that all children experience challenge and success in Mathematics by developing a growth mindset. Regular and ongoing assessment informs teaching, as well as intervention, to support and enable the successof each child.

How do we plan at Woodlands?

Long Term planning will be provided by Maths Leader – White Rose SOW

Medium Term planning will take the form of White Rose Small Steps

Weekly Planning is constructed by teachers using the rationale above. Further support may be sought from NRICH, 3rd Space Learning, Classroom Secrets, Numicon planning documents etc. Key is to ensure the 5 principles of mastery.

Planning is linked to children's prior knowledge. Class teachers are aware of what has been taught in other classes and can link their own class' learning back to this. While we give children of all abilities the opportunities to develop their skills, knowledge and understanding, we also plan progression into each unit of work, so that there is an increasing challenge for the children as they move up through the school.

How does Mathematics contribute to other areas of the curriculum?

The skills that children develop in Mathematics are linked to, and applied in, every subject of our curriculum. The children's skills in reasoning and problem solving enable them to communicate and express

themselves in all areas of their work at school.

How do we include everyone?

At our school, we teach Mathematics to all children, whatever their ability and individual needs. We strive hard to meet the needs of those pupils with special educational needs, those with disabilities, those with special gifts and talents, and those learning English as an additional language, and we take all reasonable steps to achieve this. For further details, see separate policies: Special Educational Needs; Gifted and Talented Children; English as an Additional Language (EAL). **We adapt; we don't differentiate.**

When progress falls significantly outside the expected range, the child may have special educational needs. Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, and adaption – so that we can take some additional or different action to enable the child to learn more effectively. Assessment against the National Curriculum and assessment expectations allows us to consider each child's attainment and progress against expected levels. This ensures that our teaching is matched to the child's needs.

Teachers use careful questions to draw out children's discussions and their reasoning. The class teacher then leads children through strategies for solving the problem, including those already discussed. Independent work provides the means for all children to develop their fluency further, before progressing to more complex related problems. Mathematical topics are taught in blocks, to enable the achievement of 'mastery' over time. Each lesson phase provides the means to achieve greater depth, with children being offered rich and sophisticated problems,as well as exploratory, investigative tasks, within the lesson as appropriate.

Calculations Policy

We use the calculation policy aligned with the White Rose scheme of work, this aligns with the National Curriculum objectives and methods.

We recognise that mathematics can only be used effectively when the user understands the tool, andhas ownership of it. With our calculation policy, we can be confident throughout school, that the hardwork we all put into teaching the children each year to calculate, will be consolidated and extended the following year.

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 andscaffolding to enable them to solve mathematical problems.

Children will then be encouraged to use the calculation strategies they are secure with, whether donementally or using pencil and paper method.

Marking

The quality of marking is crucial. If the teacher makes a comment in a pupils' book it should refer back to the learning objective and will normally involve ticking the LO met / LO partly met / LO not met box. Marking should be both diagnostic and summative and school policy believes that it is best done through conversation with the child but acknowledges that constraints of time do no always allow this.

When appropriate the children themselves can mark exercises which involves routine fluency practice with support and guidance from the teacher. The class teacher should mark any reasoning, problem solving or explaining that takes place or provide support for children to correct and edit. Where appropriate children in KS2 are encouraged to check computational exercises by using the inverse operation. This fosters independence in the children (who can seek help if they are unable to locate and correct their errors) and also ensures that pupilsreceive prompt feedback.

Exercise books for recording

It is the school policy that the following book are used:

- ✓ KS1: 1cm squares
- ✓ Year 3: 1cm squares
- ✓ Year 4: 1cm squares
- ✓ Year 5: 7mm squares
- ✓ Year 6: 7mm squares

All children are encouraged to work tidily and neatly when recording their work with a strong focus on the school handwriting policy being used. When using squares one square should be used for each digit (for more detail refer to the School Marking and Assessment for Learning Policy).

Assessment and record keeping

Teachers use the National Curriculum in England and the White Rose Maths Hub supporting materials to plan assessment activities. The work set, combined with a scrutiny of children's recorded work over the previous six weeks, helps to review how well children have taken in the units of work taught and identifies any remaining misconceptions.

Formal Assessment

Teachers assess all pupils towards the end of T1, T2, T4 and T6 using assessment materials provided by NFER. The results of these assessments are recorded on INSIGHT –Below (Emerging), Just Below (Working Towards), On Track (Expected), Great Depth. Intervention strategies (in addition to the Keep up not Catch up T+L model) are discussed termly in Pupil Progress Meetings with the Headteacher and Assessment Leader.

Evidence – As an **ongoing assessment practice,** teachers and teaching assistants should collect evidence that could be used to support an effective judgement. This must be independent work by the child, i.e. something they require no teaching input to show that they have secure understanding of the topic. This could be:

- End of unit assessments.
- Independent work from Maths books.
- Something that the child has said during the course of a mathematical discussion – recorded on a post-it note or equivalent.

This evidence is used to inform our teacher assessments of each child which is recorded on the INSIGHT system.

Monitoring and Evaluation

The Mathematics leader is released regularly from their classroom in order to work alongside other teachers. This time is used to monitor and evaluate the quality and standards of Mathematics throughout the school and enables the leader to support teachers develop practise in their own classrooms.

Homework

Refer to the school Homework Policy for more detail.

Role of the subject leader

- To take the lead in policy development (including the statement of intent and the curriculum unit overviews for each year group).
- To oversee the continuity of the subject and the progression of teaching and learning through the White Rose SOW (termly and weekly planning).
- To create, maintain and implement an annual Mathematics Action Plan.
- To regularly meet the link governor for Mathematics to discuss progress towards key objectives on the subject action plan (at least 3 meetings per year: x1 Autumn, x1 Spring & x1 Summer).
- The leader will regularly monitor the quality of teaching and the standard of work produced.
- The leader will carry out regular work scrutiny for each year group and provide prompt feedback.
- The leader will monitor staff use of the INSIGHT Assessment tracking system.
- The subject leader will offer support to colleagues and share their expertise and experience.
- The leader will meet new members of staff to go through the policy and curriculum and share how work is record and how assessments are carried out.
- The leader will advise teachers on new teaching methods they may wish to explore. They will support teachers in developing their confidence and skill in the teaching of Mathematics.
- The leader will ensure a high quality CPD programme is in place and this will be delivered during Staff Meeting INSET.
- The subject leader will attend relevant training for Mathematics leaders and share information with staff.
- To take responsibility for the choice, purchase and organisation of central resources for Mathematics, in consultation with colleagues.