At Woodhall Primary School we use the Mathematics Mastery programme. This approach has three key principles: deep understanding, mathematical thinking and language, with problem solving at the heart of our curriculum. Instead of learning mathematical procedures by rote, we want pupils to build a deep conceptual knowledge and understanding.

The MM curriculum is designed to make sure that the requirements of the 2014 National Curriculum for England are fully met.

The National Curriculum aims to ensure that all pupils:

- **Become** fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **Reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- **Solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

(NC 2014)

The curriculum is cumulative - each school year begins with a focus on 'Place Value' which is applied throughout the curriculum.

A crucial part of a 'deep understanding' in maths is being able to represent ideas in many different ways. We adopt a CPA (Concrete, Pictorial, Abstract) using objects and pictures to represent abstract concepts which is essential to achieving mastery.

We believe it is essential for pupils to become independent thinkers in and out of the classroom in order to fully master mathematical concepts.

We believe that pupils should:

- Explore, wonder, question and conjecture,
- Compare, classify, sort,
- Experiment, play with possibilities, vary an aspect and see what happens,
- Make theories and predictions and act purposefully to see what happens, generalise.
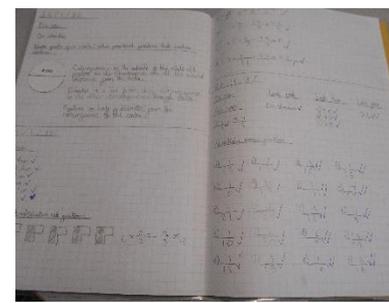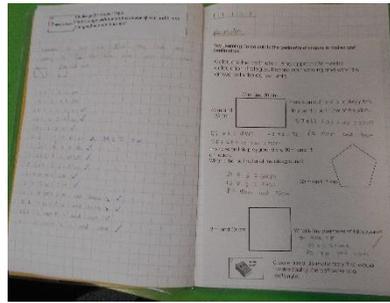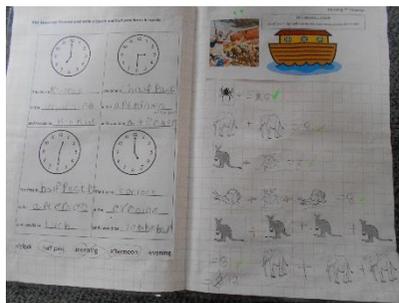 (Mathematics Mastery 2019)

Good questioning is used to develop pupils' ability to compare, modify and generalise, all building a deeper understanding of mathematics.

We believe that pupils should be encouraged to use mathematical language and full sentences throughout their maths learning to deepen their understanding of concepts. The children are introduced to relevant vocabulary at the start of every lesson and given the opportunity to use and develop their understanding within the lesson during the daily Talk Task.

At Woodhall Primary school, we promote a growth mindset belief – that all children can achieve regardless of their background. We believe that everyone can get better at maths, when they put in the effort and work hard.

Our aim at Woodhall is that all pupils will become confident and competent mathematicians; they will be able to respond proactively and positively to challenges by exploring, recognising patterns, hypothesising and they will be empowered to problem solve in new and unfamiliar situations.

As well as a daily maths lesson, each class has regular Maths Meetings. These help to consolidate key areas of mathematics. Maths Meetings provide an opportunity to teach and revise 'general knowledge maths' which may not explicitly be covered during the maths lesson, and also allows the daily integration of maths into the surrounding environment. This means that pupils are practising concepts and skills on a regular basis, meaning they are continually building on their mastery of these concepts. (Ark Curriculum 2022)

Mathematics Mastery
Curriculum Map: Reception

Autumn

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11
Early mathematical experiences				**Pattern and early number**		**Numbers within 6**		**Addition and subtraction within 6**	**Measures**	**Shape and sorting**
• Classifying objects based on one attribute • Matching equal and unequal sets • Comparing objects and sets • Ordering objects and sets				• Recognise, describe, copy and extend colour and size patterns • Count and represent the numbers 1 to 3 • Estimate and check by counting		• Count up to six objects. • One more or one fewer • Order numbers 1 – 6 • Conservation of numbers within six		• Explore zero • Explore addition and subtraction	• Estimate, order compare, discuss and explore capacity, weight and lengths	• Describe, and sort 3-D shapes • Describe position accurately

Spring

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 8	Week 9
Numbers within 10		**Calendar and time**	**Addition and subtraction within 10**	**Grouping and sharing**		**Number patterns within 15**		**Doubling and halving**	**Shape and pattern**
• Count up to ten objects • Represent, order and explore numbers to ten • One more or fewer, one greater or less		• Days of the week, seasons • Sequence daily events	• Explore addition as counting on and subtraction as taking away	• Counting and sharing in equal groups • Grouping into fives and tens • Relationship between grouping and sharing		• Count up to 15 objects and recognise different representations • Order and explore number patterns to 15 • One more or fewer		• Doubling and halving • Relationship between doubling and halving	• Describe and sort 2-D and 3-D shapes • Recognise, complete and create patterns

Summer

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
Securing addition and subtraction facts		**Number patterns within 20**		**Number patterns beyond 20**	**Money**	**Measures**		**Exploration of patterns within number**	
• Commutativity • Explore addition and subtraction • Compare two amounts		• Count up to 10 and beyond with objects • Represent, compare and explore numbers to 20 • One more or fewer		• One more one less • Estimate and count • Grouping and sharing	• Coin recognition and values • Combinations to total 20p • Change from 10p	• Describe capacities • Compare volumes • Compare weights • Estimate, compare and order lengths		• Explore numbers and strategies • Recognise and extend patterns • Apply number, shape and measures knowledge • Count forwards and backwards	

Mathematics Mastery Curriculum Map: Year 1

Autumn

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
Numbers to 10		Addition and subtraction within 10		Shape and patterns		Numbers to 20		Addition and subtraction within 20	
• Represent, compare and explore numbers within 10 • One more and one less • Doubling and halving		• Represent and explain addition and subtraction • Commutativity • Addition and subtraction facts		• Identify, describe, sort and classify 2-D and 3-D shapes • Investigate repeating patterns • Use and follow instructional and positional language		• Identify, represent, compare and order numbers to 20 • Doubling and halving • One more and one less		• Represent and explain addition and subtraction strategies including 'Make Ten' • Use known facts to add and subtract	

Spring

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
Time		Exploring calculation strategies within 20	Numbers to 50			Addition and subtraction within 20		Fractions	Measures: Length and mass
• Read, write and tell the time to o'clock and half past on analogue clock • Sequencing daily activities • Whole and half turns linked to time		• Model, explain and choose addition and subtraction strategies	• 2-digit numbers – represent, sequence, explore, compare. • Count in 2s, 5s and 10s • Describe and complete number patterns			• Illustrate, explain and link addition and subtraction with equations • Apply 'Make Ten' strategy • Use language to quantify and compare difference		• Identify $\frac{1}{2}$ and $\frac{1}{4}$ of a shape or object • Find $\frac{1}{2}$ and $\frac{1}{4}$ of a quantity	• Compare and measure lengths and mass using cm and kg • Doubling and halving

Summer

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
Numbers 50 to 100 and beyond		Addition and subtraction		Money		Multiplication and division		Measures: Capacity and volume	
• Read, write, represent, compare and order numbers to 100 • One more / fewer, ten more / fewer • Identify number patterns		• Explore addition and subtraction involving 2-digit numbers and ones • Represent and explain addition and subtraction with regrouping • Investigate number bonds within 20		• Name coins and notes and understand their value • Represent the same value using different coins • Find change		• Share equally into groups • Doubling • Link halving to fractions • Add equal groups • Explore arrays		• Compare capacities, volumes and lengths • Explore litres • Apply understanding of fractions to capacity	

Mathematics Mastery
Curriculum Map: Year 2

Autumn

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
	Numbers within 100		**Addition and subtraction of 2-digit numbers**		**Addition and subtraction word problems**		**Measures: Length**		**Graphs**	**Multiplication and division: 2, 5, and 10**		
	• Read, write, represent, partition, compare and order numbers to 100 • Explore patterns including, odds and evens, tens and ones		• Apply number bonds to add and subtract • Represent and explain addition and subtraction of two 2-digit numbers. • Add three 1-digit numbers		• Introduction to bar models as a representation • Create, label and sketch bar models		• Draw and measure lengths in centimetres • Use <, > and = to compare and order lengths in metres and centimetres		• Represent and interpret: pictograms, block diagrams, tables and tally charts.	• Calculate the times tables of 2, 5, and 10 by skip counting • Relate the 2 times table to doubling • Explore representations of multiplication and division • Commutativity		

Spring

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11
	Time		**Fractions**		**Addition and subtraction of 2-digit numbers**		**Money**		**Face, shapes and patterns; lines and turns**		
	• Tell the time on an analogue clock: quarter past, quarter to and five minute intervals • Calculate durations of time in minutes and seconds • Sequence daily events • Minutes in an hour and hours in a day		• Part-whole relationships • Fractions as part of a whole or a whole set • Relate to division • Equivalent fractions		• Illustrate, represent and explain addition and subtraction involving regrouping including 'Make Ten', 'Round and adjust' and near doubles strategies		• Recognise coins and notes • Use £ and p accurately • Add and subtract amounts • Calculate change		• Explore, sort and describe 2-D shapes • Lines of symmetry in 2-D shapes • Identify 2-D shapes on 3-D shapes • Compare and sort 2-D and 3-D shapes • Use language to describe position, direction and rotation to follow a route		

Summer

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9
	Numbers within 1000	**Measures: Capacity and volume**		**Measures: Mass**	**Exploring calculation strategies**		**Multiplication and division: 3 and 4**		
	• Represent in different ways • Compare using symbols • Read scales	• Read and measure temperature • Estimate, measure and understand litres and millilitres • Compare and order capacities		• Weigh and compare masses in kilograms and grams	• Apply addition and subtraction strategies to solve equations • Illustrate and explain addition and subtraction using column method		• Multiplication and division facts for 3 and 4 • Relate 4 times table to doubling the 2 times tables • Describe, interpret and represent using arrays and bar models • Recognise inverse relationship		

Mathematics Mastery
Curriculum Map: Year 3

Autumn

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11
Number sense and exploring calculation strategies			**Place value**		**Graphs**	**Addition and subtraction**			**Length and perimeter**	
• Read, write, order and compare numbers to 100 • Calculate mentally using known facts, round and adjust, near doubles, adding on to find the difference • Derive new facts from a known fact			• Read, write, represent, partition, order and compare 3-digit numbers • Find 10 and 100 more or less • Round to the nearest multiple of 10 and 100		• Collect, interpret and present data using charts and tables	• Develop and use a range of mental calculation strategies • Illustrate and explain formal written methods – column method			• Measure, draw and compare lengths • Add and subtract lengths • Calculate perimeter	

Spring

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
Multiplication and division		**Deriving multiplication and division facts**			**Time**		**Fractions**		
• Multiplication and division facts for 2, 3, 4, 5, 6, 8 and 10 • Multiplicative structures: equal groups/parts, change and comparison, correspondence problems • Relationships: commutativity and inverse		• Multiply and divide by 10 and 100 • Multiply a 2-digit number by 2, 3, 4, 5 and corresponding division situations • Divide 2-digit by a 1-digit			• Tell, record, write and order the time analogue and digital • 12-hour, a.m., p.m. • Measure, calculate and compare durations		• Part-whole relationships • Fractions as part of a whole or a whole set and as a number • Add, subtract, compare and order fractions		

Summer

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9
Angles and shape			**Measures**			**Securing multiplication and division**	**Exploring calculation strategies and place value**	
• Identify angles including right angles and recognise as a quarter of a turn • Identify and draw parallel and perpendicular lines • Draw/make, classify and compare 2-D and 3-D shapes • Measure the perimeter			• Read scales with different intervals when measuring mass and volume • Weigh and compare masses and capacities with mixed units • Estimate mass and capacity			• Recall and use multiplication and division facts for 6 and 8 times table	• Add and subtract mentally • Find 10, 100 and 1000 more or less • Order and compare beyond 1000 • Round numbers	

Mathematics Mastery — Curriculum Map: Year 4

Autumn

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
Autumn	**Reasoning with large numbers**		**Addition and subtraction**			**Multiplication and division**			**Discrete and continuous data**	

Reasoning with large numbers
- 4-digit place value. Read, write, represent, order and compare
- Find 10, 100 or 1000 more or less
- Round numbers to the nearest 10, 100 or 1000

Addition and subtraction
- Select appropriate strategies to add and subtract
- Illustrate and explain appropriate addition and subtraction strategies including column method with regrouping

Multiplication and division
- Distributive property including multiplying three 1-digit numbers
- Mental multiplication and division strategies using place value and known and derived facts
- Short multiplication and division

Discrete and continuous data
- Read, interpret and construct pictograms, bar charts and time graphs
- Compare tables, pictograms and bar charts

Spring

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11
Spring	**Securing multiplication facts**	**Fractions**				**Time**	**Decimals**			**Area and perimeter**	

Securing multiplication facts
- Identify and explore patterns in multiplication tables including 7 and 9

Fractions
- Explore different interpretations and representations of fractions
- Equivalent fractions
- Represent fractions greater than one as mixed number and improper fractions
- Add and subtract fractions with the same denominator including fractions greater than one

Time
- Analogue to digital, 12-hour and 24-hour
- Convert between units of time

Decimals
- Decimal equivalents to tenths, quarters and halves
- Compare and order numbers with same number of decimal places
- Multiply and divide by 10 and 100 including decimals

Area and perimeter
- Perimeter of rectangles and rectilinear shapes
- Area of rectangles and rectilinear shapes
- Investigate area and perimeter

Summer

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
Summer	**Solving measures and money problems**			**Shape and symmetry**			**Position and direction**	**Reasoning with pattern and sequences**		**3-D shape**

Solving measures and money problems
- Convert units of measure
- Select appropriate units to measure
- Use strategies to investigate problems: trial and improvement, organising using lists and tables, working systematically

Shape and symmetry
- Classify, compare and order angles
- Compare and classify 2-D shapes
- Identify lines of symmetry

Position and direction
- Describe and plot using coordinates
- Describe translations

Reasoning with pattern and sequences
- Roman numerals up to 100
- Place value of other number systems
- Number sequences and patterns

3-D shape
- Use understanding of 3-D shapes
- Identify 3-D shapes from 2-D representations

Mathematics Mastery
Curriculum Map: Year 5

Autumn

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
	Reasoning with large whole integers		Integer addition and subtraction		Line graphs and timetables		Multiplication and division			Perimeter and area

Reasoning with large whole integers
- Read, write, order and compare numbers up to one million
- Round numbers within one million to the nearest multiple of powers of ten
- Read Roman numerals up to M

Integer addition and subtraction
- Use rounding to estimate
- Use a range of mental calculation strategies to add and subtract integers
- Illustrate and explain the written method of column addition and subtraction
- Select efficient calculation strategies

Line graphs and timetables
- Complete, read and interpret data presented in line graphs
- Read and interpret timetables including calculating intervals

Multiplication and division
- Identify multiples and factors
- Investigate prime numbers
- Multiply and divide by 10, 100 and 1000 (integers)
- Derived facts
- Illustrate and explain formal multiplication and division strategies such as short and long
- Use a range of mental calculation strategies

Perimeter and area
- Investigate area and perimeter of rectilinear shapes
- Estimate area of non-rectilinear shapes

Spring

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
	Fractions and decimals			Angles		Fractions and percentages			Transformations	

Fractions and decimals
- Read, write, order and compare decimals
- Round decimals to the nearest whole number
- Represent, identify, name, write, order and compare fractions (including improper and mixed numbers)
- Calculate fractions of amounts

Angles
- Classify, compare and order angles
- Measure a draw angles with a protractor
- Understand and use angle facts to calculate missing angles

Fractions and percentages
- Add, subtract fractions with denominators that are multiples of the same number
- Multiply fractions (and mixed numbers) by a whole number
- Explore percentage, decimal, fractions equivalence

Transformations
- Coordinates in all four quadrants
- Translation and reflection
- Calculate intervals across zero as a context for negative numbers

Summer

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
	Converting units of measure		Calculating with whole numbers and decimals			2-D and 3-D shape		Volume	Problem solving	

Converting units of measure
- Convert between metric units of length, mass and capacity and units of time
- Know and use approximate conversion between imperial and metric

Calculating with whole numbers and decimals
- Mental strategies to add and subtract involving decimals
- Formal written strategies to add, subtract and multiply involving decimals
- Multiply and divide by 10, 100 and 1000 involving decimals
- Derive multiplication facts involving decimals

2-D and 3-D shape
- Classify 2-D shapes and reason about regular and irregular polygons
- Properties of diagonals of quadrilaterals
- Classify 3-D shapes
- 2-D representations of 3-D shapes.

Volume
- Use cube numbers and notation
- Estimate volume
- Convert units of volume

Problem solving
- Negative numbers and calculating intervals across zero
- Calculating the mean
- Interpret remainders
- Investigate numbers: consecutive, palindromic, multiples

Mathematics Mastery Curriculum Map: Year 6

The first two units need to be taught before any other units as these cover place value and the four operations and ensure firm foundations for the rest of the learning.

The remaining units can be taught in any order with the following caveats:

- The first five lessons of the first Fractions unit should be taught prior to learning on calculating with fractions.
- The Proportion problems unit should only be taught after the units on fractions, decimals and percentages.

1) Integers and decimals (10 lessons)	2) Multiplication and division (15 lessons)	3) Calculation problems (10 lessons)	4) Fractions (10 lessons)	5) Missing angles and length (5 lessons)
• Represent, read, write, order and compare numbers up to ten million • Round numbers, make estimates and use this to solve problems in context • Solve multi-step problems involving addition and subtraction	• Identify and use properties of number, focusing on primes • Multiply larger integers and decimal numbers using a range of strategies • Divide integers by 1-digit and 2-digit numbers representing remainders appropriately • Illustrate and explain formal multiplication and division strategies	• Understand the use of brackets • Use knowledge of the order of operations to carry out calculations • Generate and describe linear number sequences • Express missing number problems algebraically • Solve equations with unknown values	• Deepen understanding of equivalence • Order, simplify and compare fractions, including those greater than one • Recall equivalence between common fractions and decimals • Find decimal quotients using short division • Add and subtract fractions	• Compare and classify a range of geometric shapes • Use angle facts to find unknown angles

6) Coordinates and shapes (10 lessons)	7) Fractions (5 lessons)	8) Decimals and measure (15 lessons)	9) Percentage and statistics (10 lessons)	10) Proportion problems (10 lessons)
• Draw a range of geometric shapes using given dimensions and angles • Describe, draw, translate and reflect shapes on a co-ordinate plane • Recognise and construct 3-D shapes • Name and illustrate parts of a circle	• Represent multiplication involving fractions • Multiply two proper fractions • Divide a fraction by an integer	• Use, read, write and convert between standard units of measures; length, mass, time, money and volume as well as imperial units • Calculate the area of parallelograms and triangles • Calculate, estimate and compare the volume of cuboids	• Calculate and compare percentages of amounts • Connect percentages with fractions • Explore the equivalence of fractions, decimals and percentages • Calculate the mean • Construct and interpret lines graphs and pie charts • Compare pie charts	• Use fractions to express proportion • Identify ratio as a relationship between quantities and as a scale factor • Unequal sharing involving ratio