Woodlands mathematics curriculum plan
Year 4

Long term plan.

The LTP is a guide for what should be taught and when but this will change depending on the needs of your teaching group. If it is a weaker area then more time will need to be spent on the strand. If you feel your teaching group are secure then less time will be needed and you can then build in additional revision/consolidation or move on to the next strand. Use the LTP as a guide but ensure that the time spent on each strand matches the need of your teaching group.

The LTP does not include assessment weeks.

	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	Number: Place value 4 weeks					Revision week		Number: Addition and subtraction 5 weeks				

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Spring	Consolidation of Autumn term	Number: Multiplication and division 3 weeks			Number: Multiplication and division 3 weeks			Number: Fractions 5 weeks					Consolidation of Spring and Autumn term

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11
Summer	Number: Decimals 3 weeks		Health and fitness week	Number: Decimals 3 weeks	Consolidation weeks - reinforce concepts taught through application, problem solving and reasoning. Measures and geometry						

Daily dashboard, daily sizzling 6 starters, daily reasoning challenges and weekly workouts revisit and keep simmering content children have already been taught.

Areas to be also be taught through continuous provision and through cross-curricular links - statistics, measure, geometry, time, rapid recall of number facts.

Resource Links

Vocabulary progression document

Year 1 maths mastery booklet

NCETM place value reasoning map with NRICH links
NCETM addition and subtraction reasoning map with NRICH links
NCETM multiplication and division reasoning map with NRICH links
NCETM fractions reasoning map with NRICH links
NCETM measurement reasoning map with NRICH links
NCETM Geometry – shape - reasoning map with NRICH links
NCETM Geometry – position - reasoning map with NRICH links

White Rose fluency, reasoning and problem solving documents
White Rose Autumn Mastery document
White Rose Spring Mastery document
White Rose Summer Mastery document

Blooms planning tool
Blooms questions KS1

White Rose end of block assessments

White Rose end of term assessments

White Rose reasoning problems Powerpoints
Place value within 10
Place value within 20
Place value to 50
Place value to 100
Addition and subtraction to 10
Addition and subtraction to 20
Length and height
Weight and volume
Multiplication and division
Fractions
Position and direction
Money
Time
Shape

Medium term plan.

Autumn term

Number: Place value – 4 weeks	
White Rose Small Steps • Roman numerals to 100 • Round to the nearest 10 • Round to the nearest 100 • Count in 1,000s • 1,000s, 100s, 10s and 1s • Partitioning • Number line to 10,000 • 1,000 more or less • Compare numbers • Order numbers • Round to the nearest 1,000 • Count in 25s • Negative numbers **NCETM spines: Spine 1: Number, addition and subtraction** **1.22 Composition and calculation: 1,000 and four-digit numbers** **NCETM link** **Teaching point 1**: Ten hundreds make 1,000, which can also be decomposed into 100 tens and 1,000 ones. **Teaching point 2**: When multiples of 100 are added or subtracted, the sum or difference is always a multiple of 100. **Teaching point 3**: Numbers over 1,000 have a structure that relates to their size. This means they can be ordered, composed and decomposed. **Teaching point 4**: Numbers can be rounded to simplify calculations or to indicate approximate sizes. **Teaching point 5**: Calculation approaches learnt for three-digit numbers can be applied to four-digit numbers.	**National curriculum objectives** Count in multiples of 6, 7, 9, 25 and 1,000. Find 1,000 more or less than a given number. Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens and ones). Order and compare numbers beyond 1,000. Identify, represent and estimate numbers using different representations. Round any number to the nearest 10, 100 and 1,000. Solve number and practical problems that involve all of the above and with increasingly large positive numbers. Count backwards through zero to include negative numbers.

Teaching point 6: 1,000 can also be composed multiplicatively from 500s, 250s or 200s, units that are commonly used in graphing and measures.

1.23 Composition and calculation: tenths

NCETM link

Teaching point 1: When one is divided into ten equal parts, each part is one tenth of the whole.

Teaching point 2: Tenths can be expressed as decimal fractions; the number written '0.1' is one tenth; one is ten times the size of 0.1.

Teaching point 3: We can count in tenths up to and beyond one.

Teaching point 4: Numbers with tenths can be composed additively and multiplicatively.

Teaching point 5: Known facts and strategies, including column algorithms, can be applied to calculations for numbers with tenths.

Teaching point 6: Numbers with tenths can be rounded to the nearest whole number by examining the value of the tenths digit.

1.24 Composition and calculation: hundredths and thousandths

NCETM link

Teaching point 1: When one is divided into 100 equal parts, each part is one hundredth of the whole. When one tenth of a whole is divided into ten equal parts, each part is one hundredth of the whole.

Teaching point 2: Hundredths can be expressed as decimal fractions; the number written '0.01' is one hundredth; one is one hundred times the size of 0.01; 0.1 is ten times the size of 0.01.

Teaching point 3: We can count in hundredths up to and beyond one.

Teaching point 4: Numbers with hundredths can be composed additively and multiplicatively.

Teaching point 5: Numbers with tenths and hundredths are commonly used in measurement, scales and graphing contexts.

Teaching point 6: Known facts and strategies, including column algorithms, can be applied to calculations for numbers with hundredths; the same approaches can be used for numbers with hundredths as are used for numbers with tenths.

Teaching point 7: Numbers with hundredths can be rounded to the nearest tenth by examining the value of the hundredths digit or to the nearest whole number by examining the value of the tenths digit.

Teaching point 8: When one is divided into 1,000 equal parts, each part is one thousandth of the whole. Knowledge and strategies for numbers with tenths and hundredths can be applied to numbers with thousandths.

Number: Addition and subtraction – 5 weeks	
White Rose Small Steps • Add and subtract 1s, 10s, 100s and 1,000s • Add two 4-digit numbers – no exchange • Add two 4-digit numbers – one exchange • Add two 4-digit numbers – more than one exchange • Subtract two 4-digit numbers – no exchange • Subtract two 4-digit numbers – one exchange • Subtract two 4-digit numbers – more than one exchange • Efficient subtraction • Estimate answers • Checking strategies	**National curriculum objectives** Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. Estimate and use inverse operations to check answers to a calculation. Solve addition and subtraction two step problems in contexts, deciding which operations and methods to use and why.

Spring term

Number: Multiplication and division – 3 weeks	
White Rose Small Steps • Multiply by 10 • Multiply by 100 • Divide by 10 • Divide by 100 • Multiply by 1 and 0 • Divide by 1 and itself • Multiply and divide by 6 • Multiply and divide by 9 • 9 times table and division facts • Multiply and divide by 7	**National curriculum objectives**

- 7 times table and division facts

NCETM – Spine 2: Multiplication and division

2.10 Connecting multiplication and division, and the distributive law

NCETM link

Teaching point 1: Multiplication is commutative; division is not commutative.
Teaching point 2: Multiplication is distributive: multiplication facts can be derived from related known facts by partitioning one of the factors, and this can be interpreted as partitioning the number of groups; two-part problems that involve addition/subtraction of products with a common factor can be efficiently solved by applying the distributive law.
Teaching point 3: The distributive law can be used to derive multiplication facts beyond known times tables.

2.13 Calculation: multiplying and dividing by 10 or 100

NCETM link

Teaching point 1: Finding 10 times as many is the same as multiplying by 10 (for positive numbers); to multiply a whole number by 10, place a zero after the final digit of that number.
Teaching point 2: To divide a multiple of 10 by 10, remove the final zero digit (in the ones place) from that number.
Teaching point 3: Finding 100 times as many is the same as multiplying by 100 (for positive numbers); to multiply a whole number by 100, place two zeros after the final digit of that number.
Teaching point 4: To divide a multiple of 100 by 100, remove the final two zero digits (in the tens and ones places) from that number.
Teaching point 5: Multiplying a number by 100 is equivalent to multiplying by 10, and then multiplying the product by 10. Dividing a multiple of 100 by 100 is equivalent to dividing by 10, and then dividing the quotient by 10.
Teaching point 6: If one factor is made 10 times the size, the product will be 10 times the size. If the dividend is made 10 times the size, the quotient will be 10 times the size.
Teaching point 7: If one factor is made 100 times the size, the product will be 100 times the size. If the dividend is made 100 times the size, the quotient will be 100 times the size.

Recall and use multiplication and division facts for multiplication tables up to 12×12

Count in multiples of 6, 7, 9, 25 and 1,000

Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers.

Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one-digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.

2.8 Times tables: 3, 6 and 9, and the relationship between them **NCETM link** **Teaching point 1**: Taught in year 3 **Teaching point 2**: Counting in multiples of six can be represented by the six times table. Adjacent multiples of six have a difference of six. Facts from the six times table can be used to solve multiplication and division problems with different structures. **Teaching point 3**: Products in the six times table are double the products in the three times table; products in the three times table are half of the products in the six times table. **Teaching point 4**: Counting in multiples of nine can be represented by the nine times table. Adjacent multiples of nine have a difference of nine. Facts from the nine times table can be used to solve multiplication and division problems with different structures. **Teaching point 5**: Products in the nine times table are triple the products in the three times table. Products that are in the three, six and nine times tables share the same factors. **Teaching point 6**: Divisibility rules can be used to find out whether a given number is divisible (to give a whole number) by three, six or nine. **2.9 Times tables: 7 and patterns within/across times tables** **NCETM link** **Teaching point 1**: Counting in multiples of seven can be represented by the seven times table. Adjacent multiples of seven have a difference of seven. Facts from the seven times table can be used to solve multiplication and division problems with different structures. **Teaching point 2**: When both factors are odd numbers, the product is an odd number; when one factor is an odd number and the other is an even number, the product is an even number; when both factors are even numbers, the product is an even number. **Teaching point 3**: When both factors have the same value, the product is called a square number; square numbers can be represented by objects arranged in square arrays. **Teaching point 4**: Divisibility rules can be used to find out whether a given number is divisible (to give a whole number) by particular divisors.	

Number: Multiplication and division – 3 weeks

White Rose Small Steps

- 11 and 12 times-table
- Multiply 3 numbers
- Factor pairs
- Efficient multiplication
- Written methods
- Multiply 2-digits by 1 digit
- Multiply 3-digits by 1-digit
- Divide 2-digits by 1-digit (1)
- Divide 2-digits by 1 digit (2)
- Divide 3-digits by 1-digit
- Correspondence problems

NCETM spines

2.11 Times tables: 11 and 12

NCETM link

Teaching point 1: The distributive law can be used to build up the 11 times table by partitioning 11 into 10 and 1. Adjacent multiples of 11 have a difference of 11.
Teaching point 2: The distributive law can be used to build up the 12 times table by partitioning 12 into 10 and 2. Adjacent multiples of 12 have a difference of 12.
Teaching point 3: Products in the 12 times table are double the products in the six times table; products in the six times table are half of the products in the 12 times table.
Teaching point 4: Divisibility rules can be used to find out whether a given number is divisible (to give a whole number) by 11 or 12.

2.12 Division with remainders

NCETM link

Teaching point 1: Objects can be divided into equal groups, sometimes with a remainder; objects can be shared equally, sometimes with a remainder; a remainder can be represented as part of a division equation.

National curriculum objectives

Recall and use multiplication and division facts for multiplication tables up to 12 × 12.

Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers.

Recognise and use factor pairs and commutativity in mental calculations.

Multiply two-digit and three-digit numbers by a one digit number using formal written layout.

Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one-digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.

Teaching point 2: If the dividend *is* a multiple of the divisor, there is *no* remainder; if the dividend *is not* a multiple of the divisor, there *is* a remainder. The remainder is always less than the divisor.
Teaching point 3: When solving contextual problems involving remainders, the answer to a division calculation must be interpreted carefully to determine how to make sense of the remainder.

2.14 Multiplication: partitioning leading to short multiplication

NCETM link

Teaching point 1: The distributive law can be applied to multiply any two-digit number by a single-digit number, by partitioning the two-digit number into tens and ones, multiplying the parts by the single-digit number, then adding the partial products.
Teaching point 2: Any two-digit number can be multiplied by a single-digit number using an algorithm called *'short multiplication'*; the digits of the factors must be aligned correctly; the algorithm is applied working from the least significant digit (on the right) to the most significant digit (on the left); if the product in any column is ten or greater, we must *'regroup'*.
Teaching point 3: The distributive law can be applied to multiply any three-digit number by a single-digit number, by partitioning the three-digit number into hundreds, tens and ones, multiplying the parts by the single-digit number, then adding the partial products.
Teaching point 4: Any three-digit number can be multiplied by a single-digit number using the short multiplication algorithm.

2.15 Division: partitioning leading to short division

NCETM link

Teaching point 1: Any two-digit number can be divided by a single-digit number, by partitioning the two-digit number into tens and ones, dividing the parts by the single-digit number, then adding the partial quotients; if dividing the tens gives a remainder of one or more tens, we must exchange the remaining tens for ones before dividing the resulting ones value by the single-digit number.

Teaching point 2: Any two-digit number can be divided by a single-digit number using an algorithm called *'short division'*; the algorithm is applied working from the most significant digit (on the left) to the least significant digit (on the right); if there is a remainder in the tens column, we must *'exchange'*.
Teaching point 3: Any three-digit number can be divided by a single-digit number, by partitioning the two-digit number into hundreds, tens and ones, dividing the parts by the single-digit number, then adding the partial quotients; if dividing the hundreds gives a remainder of one or more hundreds, we

must exchange the remaining hundreds for tens before dividing the resulting tens value by the single-digit number. **Teaching point 4**: Any three-digit number can be divided by a single-digit number using the short-division algorithm. **2.17 Structures: using measures and comparison to understand scaling** **NCETM link** **Teaching point 1**: A longer length can be described in terms of a shorter length using the language of 'times'; the longer length can be calculated, if the shorter length is known, using multiplication. **Teaching point 2**: A shorter length can be described in terms of a longer length using the language of fractions; the shorter length can be calculated, if the longer length is known, using division. **Teaching point 3**: Other measures can be compared using the language of 'times' and fractions, and calculated using multiplication or division.	

Number : Fractions – 5 weeks	
White Rose Small Steps • What is a fraction? • Equivalent fractions (1) – investigation – fraction wall • Equivalent fractions (2) – pictorial representations • Fractions greater than 1 • Count in fractions • Add 2 or more fractions • Subtract 2 fractions • Subtract from whole amounts • Calculate fractions of a quantity • Problem solving – calculate quantities **NCETM spines**	**National curriculum objectives**

3.5 Working across one whole: improper fractions and mixed numbers **NCETM link** **Teaching point 1**: Quantities made up of both wholes and parts can be expressed as mixed numbers. **Teaching point 2**: Mixed numbers can be placed on a number line. **Teaching point 3**: Understanding how to compare and order proper fractions supports the comparison and ordering of mixed numbers. **Teaching point 4**: Mixed numbers can be partitioned and combined in the same way as whole numbers. **Teaching point 5**: Mixed numbers can be written as improper fractions. **Teaching point 6**: Improper fractions can be added and subtracted in the same way as proper fractions. **3.6 Multiplying whole numbers and fractions** **NCETM link** **Teaching point 1**: Repeated addition of proper and improper fractions can be expressed as multiplication of a fraction by a whole number. **Teaching point 2**: Repeated addition of a mixed number can be expressed as multiplication of a mixed number by a whole number. **Teaching point 3**: Finding a unit fraction of a quantity can be expressed as a multiplication of a whole number by a fraction. **Teaching point 4**: A non-unit fraction of a quantity can be calculated by first finding a unit fraction of that quantity. **Teaching point 5**: If the size of a non-unit fraction is known, the size of the unit fraction and then the size of the whole can be found.	Recognise and show, using diagrams, families of common equivalent fractions. Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number. Add and subtract fractions with the same denominator.

Summer term

Decimals – 5 weeks	
White Rose Small Steps • Recognise tenths and hundredths • Tenths as decimals • Tenths on a place value grid • Tenths on a number line • Divide 1-digit by 10 • Divide 2-digits by 10 • Hundredths • Hundredths as decimals • Hundredths on a place value grid • Divide 1 or 2 digits by 100	**National curriculum objectives** Recognise and write decimal equivalents of any number of tenths or hundredths. Find the effect of dividing a one or two digit number by 10 or 100, identifying the value of the digits in the answer as ones, tenths and hundredths **Solve simple measure** and money **problems involving fractions and decimals to two decimal places.** Convert between different units of measure [for example, kilometre to metre]
Number: Decimals – 5 weeks continued	
White Rose Small Steps • Make a whole • Write decimals • Compare decimals • Order decimals • Round decimals • Halves and quarters	**National curriculum objectives**

	Compare numbers with the same number of decimal places up to two decimal places. Round decimals with one decimal place to the nearest whole number. Recognise and write decimal equivalents to $\frac{1}{4}, \frac{1}{2}$ and $\frac{3}{4}$ Understand the effect of dividing a one or two digit number by 10 or 100. Identifying the value of the digits in the answer as ones, tenths and hundredths.

Measurement: Length and perimeter – 2 weeks	
White Rose Small Steps • Kilometres • Perimeter on a grid • Perimeter of a rectangle • Perimeter of rectilinear shapes **NCETM spines** **2.16 Multiplicative contexts: area and perimeter 1** **NCETM link** **Teaching point 1**: Perimeter is the distance around the edge of a two-dimensional (2D) shape. **Teaching point 2**: Perimeter is measured in units of length and can be calculated by adding together the lengths of the sides of a 2D shape. **Teaching point 3**: Multiplication can be used to calculate the perimeter of a regular polygon; when the perimeter is known, side-lengths can be calculated using division.	**National curriculum objectives** Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. Convert between different units of measure [for example, kilometre to metre].

Measurement: Area – 1 week	
White Rose Small Steps • What is area? • Counting squares • Making shapes • Comparing area **NCETM spines** **2.16 Multiplicative contexts: area and perimeter 1** **NCETM link** **Teaching point 4**: Area is the measurement of the surface of a flat item. **Teaching point 5**: Area is measured in square units, such as square centimetres (cm^2) and square metres (m^2). **Teaching point 6**: The area of a rectangle can be calculated using multiplication; the area of a composite rectilinear shape can be found by splitting the shape into smaller rectangles.	**National curriculum objectives** Find the area of rectilinear shapes by counting squares.

Measurement: Money – 2 weeks	
White Rose Small Steps • Pounds and pence • Ordering money • Estimating money • Four operations **NCETM spine link – Spine 1: Addition and subtraction** **1.25 Addition and subtraction: money**	**National curriculum objectives** Estimate, compare and calculate different measures, including money in pounds and pence. Solve simple measure and money problems involving fractions and decimals to two decimal places.

NCETM link **Teaching point 1**: One penny is one hundredth of a pound; conventions for expressing quantities of money are based on expressing numbers with tenths and hundredths. **Teaching point 2**: Equivalent calculation strategies for addition can be used to efficiently add commonly-used prices. **Teaching point 3**: The 'working forwards'/'finding the difference' strategy for subtraction is an efficient way to calculate the change due when paying in whole pounds or notes. **Teaching point 4**: Column methods can be used to add and subtract quantities of money. **Teaching point 5**: Finding change when purchasing several items uses the part–part–(part–)whole structure.	
Measurement: Time – 2 weeks	
White Rose Small Steps • Hours, minutes and seconds • Years, months, weeks and days • Analogue to digital – 12 hour • Analogue to digital – 24 hour	**National curriculum objectives** Read, write and convert time between analogue and digital 12- and 24-hour clocks. Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.

	Tell and write the time from an analogue clock, including using Roman numerals from I to XII and 12-hour and 24-hour clocks. Estimate and read time with increasing accuracy to the nearest minute. Record and compare time in terms of seconds, minutes and hours. Use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight. Know the number of seconds in a minute and the number of days in each month, year and leap year. Compare durations of events [for example to calculate the time taken by particular events or tasks].
Statistics – 1 week	
White Rose Small Steps • Interpret charts • Comparison, sum and difference • Introducing line graphs • Line graphs	**National curriculum objectives** Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.
Geometry: Shape – 3 weeks	

White Rose Small Steps	National curriculum objectives
• Identify angles • Compare and order angles • Triangles • Quadrilaterals • Lines of symmetry • Complete a symmetric figure	Identify acute and obtuse angles and compare and order angles up to two right angles by size. Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. Identify lines of symmetry in 2-D shapes presented in different orientations. Complete a simple symmetric figure with respect to a specific line of symmetry.
Geometry: Position and direction – 1 week	
White Rose Small Steps	**National curriculum objectives**
• Describe position • Draw on a grid • Move on a grid • Describe a movement on a grid	Describe positions on a 2-D grid as coordinates in the first quadrant. Plot specified points and draw sides to complete a given polygon. Describe movements between positions as translations of a given unit to the left/ right and up/ down.