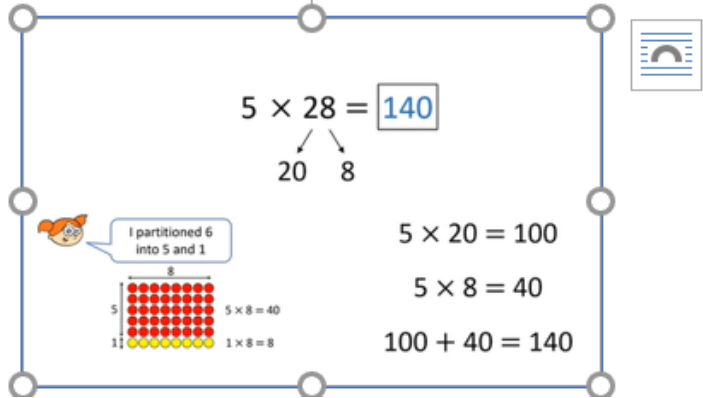




Mathematics programmes of study: KS 1 and 2 - White Rose

| <u>What do we aim to achieve? (Our intent)</u> | <u>How do we do it? (Our implementation)</u> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Mathematics is essential for everyday life. It is critical to science, technology and engineering, and is valued in most forms of employment.</p> <p>A high-quality mathematics education provides a foundation for understanding the world and the ability to reason mathematically.</p> <p>We want our pupils to become fluent in the fundamentals, developing the ability to recall and apply knowledge rapidly and accurately. We want them to reason mathematically and be able to justify their mathematical arguments. We want them to solve problems by applying their maths with increasing confidence and sophistication.</p> | <p>In Autumn 2021 we started to use the highly acclaimed White Rose Scheme of work as the basis of our planning across Reception, KS 1 and 2. We use this to ensure continuity of approach across all year groups and the varied and frequent practice of increasingly complex problems over time, so that pupils develop the conceptual understanding and ability to recall and apply knowledge rapidly and accurately. Each block of learning has a number of steps and teachers are able to use flexibility as to whether steps are combined in order to meet the needs of their cohort.</p> <p>We use practical resources and adapt planning carefully to ensure that pupils' needs are met. Maths is an interconnected subject, both within itself, and across other subjects, and wherever possible we draw links throughout the curriculum.</p> <p><u>What is the impact of this learning?</u></p> <p>Our pupils develop fluency, mathematical reasoning and competence to solve increasingly sophisticated problems. They enjoy applying their mathematical knowledge to other subjects. They develop their mathematical vocabulary and are able to confidently present mathematical justification for their decisions and answers.</p> |
| <u>Look what we have been learning about</u> | |



Mathematics programmes of study: KS 1 and 2

| YEAR A&B | Autumn | Spring | Summer |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EYFS | <p>Phase “Getting to know you”: Week 1-3 - introducing areas of provision; key times of day, class routines, positional language</p> <p>Phase “Just Like Me”: Week 4-6 Match and sort; compare amounts; Compare size, mass capacity, exploring pattern</p> <p>Phase “It’s me, 1,2,3!” Wk 7-9: Representing, comparing and composition of 1, 2 & 3; Circles and triangles, positional language</p> <p>Phase “Light and Dark” Wk 10-12: Representing numbers to 5; one more and one less. Shapes with 4 sides; Time</p> | <p>Phase “Alive in 5!” Wk 1-3 Introducing zero; comparing numbers to 5; composition of 4 & 5; Compare mass; Compare capacity</p> <p>Phase “Growing 6,7,8 ” Wk 4-6 6,7, 8; Making pairs; Combining 2 groups; Length & Height; Time</p> <p>Phase “Building 9 and 10” : Wk 7-9 counting to 9 & 10; Comparing numbers to 10; Bonds to 10; 3d-Shape; Spatial Awareness; Pattern</p> <p>Wk 10-12 Consolidation</p> | <p>Phase “To 20 and beyond” Wk 1-3 Building numbers beyond 10; Counting patterns beyond 10; Spatial reasoning (1) - match, rotate, manipulate</p> <p>Phase “First, Then, Now” Wk 4-6 Adding more; Taking away; Spatial reasoning (2) - compose and decompose</p> <p>Phase “Find my pattern” Wk 7-9 Doubling; Sharing & grouping; Even and odd; Spatial reasoning (3) - visualise and build</p> <p>Phase “On the Move” Wk 10-12 Deepening understanding; Patterns and relationships; Spatial reasoning (4) - mapping</p> |

What does each lesson cover and how does it link together over time? NC aims for Key Stage 1 (Years 1 and 2) :

To **become fluent** in the fundamentals of mathematics; to **reason mathematically** by following a line of enquiry and developing an argument; to **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication.

1M: number and place value

2M: addition and subtraction

3M: multiplication and division (including scaling or square/cube numbers or multiples and factors)

4M: fractions, decimals, percentages or ratio

5M: measurement and statistics (including lengths and height; mass/weight; capacity and volume; time; money; sequencing events; graphs, charts, pictograms and tables)

6M: geometry- properties of shapes; position and direction

We have chosen to follow version 3, the latest update from July 2022 . The activities indicated may change slightly to those listed below as more information is provided over 2022-23.

| Theme | AUTUMN TERM | | |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| KS1 Yr 1 | <p>BLOCK 1: Wk 1-5 - Number: Place Value (within 10)</p> <p>Sort objects; Count objects; Count objects from a larger group; Represent objects; Recognise numbers as words; Count on from any number; 1 more; Count backwards within 10; 1 less; Compare groups by matching; Fewer, more, same; Less than, greater than, equal to; Compare numbers; Order objects and numbers; The number line.</p> | <p>BLOCK 2: Wk 6-10 - Number: Addition & Subtraction (within 10)</p> <p>Introduce parts and wholes; Part whole model; Write number sentences; Fact families - addition facts; Number bonds within 10; Systematic number bonds within 10; Number bonds to 10; Addition - adding together; Addition - adding more; Addition problems; Finding a part; Subtraction - find a part; Fact families - the eight facts; Subtractions - taking away/cross out (How many left?); Subtraction on a number line; Add or subtract 1 or 2</p> | <p>BLOCK 3: Wk 11 - Geometry: Shape</p> <p>Recognise and name 3-D shapes; Sort 3-D shapes; Recognise and name 2-D shapes; Sort 2-D shapes; Patterns with 3-D and 2-D shapes.</p> <p>Consolidation</p> |
| Yr 2 | <p>BLOCK 1: Wk 1-4 - Number: Place Value</p> <p>Numbers to 20; Count objects to 100 and make 10s; Recognise tens and ones; Use a place value chart; Partition numbers to 100; Write numbers to 100 in words; Flexibly partition numbers to 100; Write numbers to 100 in expanded form. 10s on the number line to 100; 10s and 1s on the number line to 100; Estimate numbers on a number line; Compare objects; Compare numbers; Order objects and numbers; Count in 2s, 5s and 10s, Count in 3s.</p> | <p>BLOCK 2: Wk 5-9: Number: Addition & Subtraction</p> <p>Bonds to 10; Fact families - addition and subtraction bonds to 20; Related facts; Bonds to 100 (tens); Add and subtract 1s; Add by making 10; Add three 1-digit numbers; Add to the next 10; Add across a 10; Subtract across a 10; Subtract a 1-digit number from a 2-digit number (across a 10); 10 more, 10 less; Add and subtract 10s; Add two 2-digit numbers (not across a 10); Add two 2-digit numbers (across a 10); Subtract two 2-digit numbers (not across a 10); Subtract two 2-digit numbers (across a 10); mixed addition and subtractions; compare number sentences; missing number problems.</p> | <p>BLOCK 3: Wk 10-12 Geometry: Properties of Shape</p> <p>Recognise 2-D and 3-D shapes; Count sides on 2-D shapes; Count vertices on 2-D shapes; Draw 2-D shapes; Lines of symmetry on shapes; Using lines of symmetry to complete shapes; Sort 2-D shapes; Count faces on 3-D shapes; Count edges on 3-D shapes; Count vertices on 3-D shapes; Sort 3-D shapes; Make patterns with 2-D and 3-D shapes.</p> |
| Theme | SPRING TERM | | |
| KS1 Yr 1 | <p>BLOCK 1: Wk 1-3 - Number: Place Value (within 20)</p> <p>Count forwards and backwards and write numbers to 20 in numerals and words; Numbers from 11 to 20; Tens and ones; Count one more and one less; Compare groups of objects; Compare numbers; Order groups of objects; Order numbers.</p> <p>BLOCK 2: Wk 4-6 - Addition & Subtraction (within 20)</p> <p>Consolidation; Adding by counting on; Find & make number bonds; Add by making 10; Subtraction - not crossing 10; Subtraction - crossing 10 (1); Subtraction - crossing 10 (2); Related facts; Compare number sentences</p> | <p>BLOCK 3: Wk 7-8 - Place Value within 50</p> <p>Numbers to 50; Tens and ones; Represent numbers to 50; One more one less; Compare objects within 50; Compare numbers within 50; Order numbers within 50; Count in 2s; Count in 5s</p> | <p>BLOCK 4: Wk 9-10 - Length and Height</p> <p>Compare lengths and heights; Measure length (1); Measure length (2)</p> <p>BLOCK 5: Wk 11-12 - Measurement: Mass & Volume</p> <p>Introduce weight and mass; Measure mass; Compare mass; Introduce capacity and volume; Measure capacity; Compare capacity;</p> |

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| Yr 2 | BLOCK 1: Wk 1-2: Measurement: Money Recognising coins and notes; Count money - pence; Count money - pounds (notes and coins); Count money - notes and coins; Select money; Make the same amount; Compare money; Find the total; Find the difference; Find change; Two-step problems | BLOCK 2: Wk 3-7 - Multiplication & division Recognise equal groups; Make equal groups; Add equal groups; Multiplication sentences using the x symbol; Multiplication sentences from pictures; Use arrays; Make doubles; 2 times-table; 5 times-table; 10 times-table; Make equal groups - sharing; Make equal groups - grouping; Sharing and grouping activity; Divide by 2; Odd and even numbers; Divide by 5; Divide by 10 | BLOCK 3 : Wk 8-9: Measurement: Length and height Compare lengths and heights; Measure lengths (1); Recap Measure lengths (2); Measure length (cm); Measure length (m); Compare lengths; Order lengths; Four operations with lengths; Problem solving with lengths BLOCK 4: Wk 10-12 : Measurement: Mass, Capacity & Temperature Introduce weight and mass; Measure mass; Compare mass; Measure mass in grams; Measure mass in kilograms; Introduce capacity and volume; Measure capacity; Compare volume; Millilitres; Litres; Four operations with mass; Four operations with volume; Temperature |
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| Theme | SUMMER TERM | | |
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| KS1 Yr 1 | BLOCK 1: Wk 1-3 - Multiplication & division Consolidation; Count in 2s; Count in 5s; Count in 10s; Make equal groups; Add equal groups; Make arrays; Make doubles; Make equal groups - grouping; Make equal groups - sharing. BLOCK 2: Wk 4-5- Fractions Consolidation; Find a half (1); Find a half (2); Find a quarter (1); Find a quarter (2) | BLOCK 3: Wk 6 - Position & Direction Describe turns; Describe position (1); Describe position (2) BLOCK 4: Wk 7-8 - Place Value (within 100) Counting forwards and backwards within 100; Partitioning numbers; Comparing numbers (1); Comparing numbers (2); Ordering numbers; One more, one less. | BLOCK 5: Wk 9 - Measurement: Money Recognising coins; Recognising notes; Counting in coins BLOCK 6: Wk 10-11 - Measurement: Time Before and after; Dates; Time to the hour; Time to the half hour; Writing time; Comparing time. Consolidation |
| Yr 2 | BLOCK 1: Wk 1-3 - Statistics Make tally charts; Draw pictograms (1-1); Interpret pictograms (1-1); Draw pictograms (2, 5 and 10) ; Interpret pictograms (2, 5 and 10); Block diagrams BLOCK 2: Wk 4-5 - Number: Fractions Working with parts and wholes; Make equal parts; Recognise a half; Find a half; Recognise a quarter; Find a quarter; Recognise a third; Find a third; Unit fractions; Non-unit fractions; Equivalence of a half and 2 quarters; Find three quarters; Count in fractions; Problem solving with fractions | BLOCK 3: Wk 6-7: Geometry: Position & Direction Describe position (1); Describe position (2); Problem solving with position; Describe movement; Describing movement; Describing turns; Describing movement and turns; Describing movement and turns; Making patterns with shapes Wk 8-9 = Consolidation and problem solving | BLOCK 4: Wk 10-12: Measurement: Time Telling time to the hour; Telling time to the half hour; O'clock and half past; Quarter past and quarter to; Telling time to 5 minutes; Writing time; Hours and days; Find durations of time; Compare durations of time. |

What does each lesson cover and how does it link together over time? NC aims for Key Stage 2 (Years 3-4):

To **become fluent** in the fundamentals of mathematics; to **reason mathematically** by following a line of enquiry and developing an argument; to **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication.

1M: number and place value

2M: addition and subtraction

3M: multiplication and division (including scaling or square/cube numbers or multiples and factors)

4M: fractions, decimals, percentages or ratio

5M: measurement and statistics (including lengths and height; mass/weight; capacity and volume; time; money; sequencing events; graphs, charts, pictograms and tables)

6M: geometry- properties of shapes; position and direction

We have chosen to follow version 3, the latest update from July 2022 . The activities indicated may change slightly to those listed below as more information is provided over 2022-23.

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| Theme | AUTUMN TERM | | |
| KS2 Yr 3 | BLOCK 1 Wk: 1-3 - Number: Place Value Represent numbers to 100; Partition numbers to 100; Number line to 100; Hundreds; Represent numbers to 1,000; Partition numbers to 1000; Partition numbers to 1,000; Flexible partitioning of numbers to 1,000; Hundreds, tens and ones; Find 1,10, or 100 more or less; Number line to 1,000; Estimate on a number line to 1,000; Compare numbers to 1,000; Order numbers to 1,000; Count in 50s. BLOCK 2: Wk: 4-8 - Number: Addition and Subtraction Apply number bonds within 10; Add and subtract 1s; Add and subtract 10s; Add and subtract 100s; Spot the pattern; Add 1st across a 10; Add 10s across a 100; Subtract 1st across a 10; Subtract 10s across a 100; | BLOCK 2 CONTINUED .. Make connections; Add two numbers (no exchange); Subtract two numbers (no exchange); Add two numbers (across a 100); Subtract two numbers (across a 10); Subtract two numbers (across a 100); Add 2-digit and 3-digit numbers; Subtract a 2-digit number from a 3-digit number; Complements to 100; Estimate answers; Inverse operations; Make decisions | BLOCK 3: Wk 9-12 - Number: Multiplication & Division Multiplication - equal groups; Use arrays; Multiples of 2; Multiples of 5 and 10; Sharing and grouping; Multiply by 3; Divide by 3; The 3-times table; Multiply by 4; Divide by 4; The 4 times-table; Multiply by 8; Divide by 8; The 8 times-table; The 2, 4 and 8 times-tables; Consolidation |

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| Yr 4 | BLOCK 1: Wk 1-4 - Number: Place Value Represent numbers to 1,000; Partition numbers to 1000; Number line to 1,000; Thousands; Represent numbers to 10,000; Partition numbers to 10,000; Flexible partitioning of numbers to 10,000; Find 1,10,100, 1,000 more or less; Number line to 10,000; Estimate on a number line to 10,000; Compare numbers to 10,000; Order numbers to 10,000; Roman numerals; Round to the nearest 10; | BLOCK 2: Wk 5-7 - Number: Addition and Subtraction Add and subtract 1s, 10s, 100s and 1,000s; Add up to 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 | BLOCK 3: Wk 8 - Measurement: Area What is area?; Counting squares; Making shapes; Comparing area BLOCK 4: Wk 9-11: Number: Multiplication & Division Multiples of 3; Multiply and divide by 6; 6 times-table and division facts; Multiply and divide by 9; 9 times-tables and division facts; The 3,6 and 9 times-tables; Multiply and divide by 7; 7 times-tables and division facts; 11 times-tables and division facts; 12 times-tables and division facts; Multiply by 1 and 0; Divide a number by 1 and half; Multiply three numbers. Consolidation |
| Theme | SPRING TERM | | |
| KS2 Yr 3 | BLOCK 1: Wk 1-3 - Number: Multiplication & Division Consolidate 2, 4 and 8 times-table; Comparing statements; Related calculations; Multiply 2-digits by 1-digit (1); Multiply 2-digits by 1-digit (2); Divide 2-digits by 1-digit (1); Divide 2-digits by 1-digit (2); Divide 100 into 2, 4, 5 and 10 equal parts; Divide with remainders; Divide 2-digits by 1-digit (3); Scaling; How many ways? | BLOCK 2: Wk 4-6 - Measurement: Length & perimeter Measure length; Measure length (m); Equivalent lengths - m & cm; Equivalent lengths - mm & cm; Compare lengths; Compare lengths; Add lengths; Subtract lengths; Measure perimeter; Calculate perimeter | BLOCK 3: Wk 7-9 - Number: Fractions Make equal parts; Recognise a half; Find a half; Recognise a quarter; Find a quarter; Recognise a third; Find a third; Unit fractions; Non-unit fractions; Equivalence of a half and 2 quarters; Count in fractions BLOCK 4: Wk 10-12 - Measurement: Mass & Capacity Compare mass; Measure mass (1); Measure mass (2); Compare mass; Add and subtract mass; Compare volume; Measure capacity (1); Measure capacity (2); Compare capacity; Add and subtract capacity; Temperature |
| Yr 4 | BLOCK 1: Wk 1-3 - Number: Multiplication & Division 11 and 12 times-table; Multiply 3 numbers Factor pairs; Efficient multiplication; Written methods; Multiply 2-digits by 1-digit; Multiply 2-digits by 1-digit; Multiply 3-digits by 1-digit; Divide 2-digits by 1-digit (2); Divide 2-digits by 1-digit (1); Divide 2-digits by 1-digit (3); Divide 2-digits by 1-digit (2); Divide 3-digits by 1-digit; Correspondence problems BLOCK 2: Wk 4-5: Measurement: Length and perimeter Equivalent lengths - m and cm; Equivalent lengths - mm and cm; Kilometres; Add lengths; Subtract lengths; Measure perimeter; Perimeter on a grid; Perimeter of a rectangle; Perimeter of rectilinear shapes | BLOCK 3: Wk 6-9: Number: Fractions Unit and non-unit fractions; What is a fraction?; Tenths; Count in tenths; Equivalent fractions (1); Equivalent fractions (2); Equivalent fractions (1); Equivalent fractions (2); Fractions greater than 1; Count in fractions; Add fractions; Add 2 or more fractions; Subtract fractions; Subtract 2 fractions; Subtract from whole amounts; Fractions of a set of objects (1); Fractions of a set of objects (2); Calculate fractions of a quantity; Problem solving - calculate quantities | BLOCK 4: Wk 10-12: Number: Decimals 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 Consolidation |
| Theme | SUMMER TERM | | |
| KS2 Yr 3 | BLOCK 1: Wk 1-2: Number: Fractions Making the whole; Tenths; Count in tenths; Tenths as decimals; Fractions on a number line; Fractions of a set of objects (1); Fractions of a set of objects (2); Fractions of a set of objects (3); Equivalent fractions (1);Equivalent fractions (2); Equivalent fractions (3); Compare fractions; Order fractions; Add fractions; Subtract fractions BLOCK 2: Wk 3-4: Measurement: Money Count money (pence); Count money (pounds); Pounds and pence; Convert pounds and pence; Add money; Subtract money; Give change | BLOCK 3: Wk 5-7: Measurement: Time O'clock and half past; Quarter past and quarter to; Months and years; Hours in a day; Telling the time to 5 minutes; Telling the time to the minute; Using a.m. and p.m.; 24-hour clock; Finding the duration; Comparing durations; Start and end times; Measuring time in seconds; Problem solving with time BLOCK 4: Wk 8-9 - Geometry: Property of Shape Turns and angles; Right angles in shapes; Compare angles; Draw accurately; Horizontal and vertical; Parallel and perpendicular; Recognise and describe 2-D shapes; Recognise and describe 3-D shapes; Make 3-D shapes | BLOCK 5: Wk 10 - Statistics Make tally charts; Draw pictograms (2, 5 and 10); Interpret pictograms (2, 5 and 10); Pictograms; Bar charts; Tables Consolidation |
| Yr 4 | BLOCK 1: Wk 1-2: Number - Decimals Bonds to 10 and 100; Make a whole; Write decimals; Compare decimals; Order decimals; Round decimals; Halves and quarters BLOCK 2: Wk 3-4: Money Pounds and pence; Ordering money; Estimating money; Convert pounds and pence; Add money; Subtract money; Give change; Working with money; Four operations | BLOCK 3: Wk 5-6: Measurement: Time Telling the time to 5 minutes; Telling the time to the minute; Using a.m. and p.m.; 24-hour clock; Hours, minutes and seconds; Years, months, weeks and days; Analogue to digital - 12 hour; Analogue to digital - 24 hour Consolidation BLOCK 4: Wk 8-9 Geometry: Properties of Shape Turns and angles; Right angles in shapes; Compare angles; Identify angles; Compare and order angles; Recognise and describe 2-D shapes; Triangles; Quadrilaterals; Horizontal and Vertical; Lines of symmetry; Complete a symmetric figure | BLOCK 6: Wk 10: Statistics Interpret charts; Comparison, sum and difference; Introducing line graphs; Line graphs BLOCK 6: Wk 11-12 Geometry: Position and Direction Describe position; Draw on a grid; Move on a grid; Describe movement on a grid |

How does all this build on their learning from the Early Years?

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| Foundation Stage Profile | Mathematics | Number | <ul style="list-style-type: none"> Have a deep understanding of number to 10, including the composition of each number. Subitise (recognise quantities without counting) up to 5. Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts. Verbally count beyond 20, recognising the pattern of the counting system. Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally. To count reliably with numbers from one to 20. To say which number is one more or one less than a given number from one to 20 To place numbers one to 20 in order |
| | | Numerical Patterns | <ul style="list-style-type: none"> To add and subtract two single- digit numbers and count on and back to find the answer using quantities and objects. To solve problems including doubling, halving and sharing. |

What do they go on to learn about in Year 5 and 6?

Year 5:

Number and place value to at least 1,000,000; interpreting negative numbers; rounding and solving problems; reading Roman numerals up to 1000 (M)

Addition and subtraction of 4 digit numbers, including formal written methods and mental maths: rounding to check answers; multi-step problems in context

Multiplication and division: multiples and factors; prime numbers, factors and composite numbers; long multiplication for 4-digit numbers; division and remainders; decimals

Fractions: compare and order; equivalent fractions; recognise mixed numbers and improper fractions and convert; add and subtract fractions with same denominator; multiply proper fractions; decimals; use thousandths; round decimals, read, write, order and compare; solve problems; percentages and decimal equivalents.

Measurement: convert between different units of metric measurement; use approximate equivalences between metric/imperial; perimeter; area; volume; solve problems.

Geometry: representations; angles - acute, obtuse and reflex; measure in degrees; find missing lengths and angles; polygons; reflection or translation;

Statistics: solve comparison, sum and difference problems; interpret information in tables

Year 6:

Number and place value to 10,000,000; rounding; use negative numbers in context and across zero; solve number and practical problems.

Addition, subtraction, multiplication and division: multiply multi-digit numbers up to 4 digits using formal long multiplication; divide numbers up to 4 digits using formal long division, with remainders, fractions or rounding and short division where appropriate; mental calculations including mixed operations and large numbers; common factors, multiples and prime numbers, carry out calculations; solve multi-step problems; use estimation to check answers.

Fractions: use factors to simplify fractions; use multiples to express fractions in same denomination; compare and order; and and subtract with different denominators and mixed numbers; multiply/divide proper fractions; calculate decimal fraction equivalents; identify value of each digit to 3 decimal places; multiply numbers with up to 2 decimal places; use written division; solve problems; recall and use equivalences between simple fractions, decimals and percentages.

Ratio and proportion: solve problems involving the following: relative size and missing values; calculating percentages; similar shapes and scale factor; unequal sharing and grouping.

Algebra: use simple formulae; generate linear number sequences; express missing number problems algebraically; equations with 2 unknowns; possibilities of combinations of 2 variables

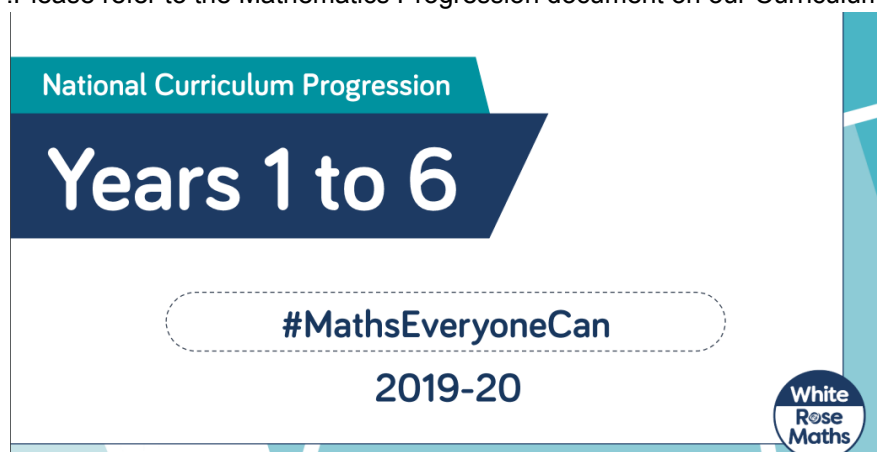
Measurement: solve problems involving calculation and conversion of units of measure using decimal notation; convert standard units (length, mass, volume and time) from smaller to larger unit; convert between miles and kilometres; recognise shapes with different perimeters; use formulae for area and volumes of shapes; calculate the area of parallelograms and triangles; calculate, estimate and compare volume of cubes and cuboids including cubic units.

Geometry: draw 2-D shapes using given dimensions and angles; build simple 3-D shapes and make nets; compare and classify geometric shapes and find unknown angles; illustrate and name parts of circles (radius, diameter, circumference); recognise and find missing angles; describe positions on the full coordinate grid (4 quadrants); draw and translate simple shapes on the coordinate plane and reflect in the axes.

Statistics: interpret and construct pie charts, line graphs and use to solve problems; calculate and interpret mean as an average.

Examples of how these units are linked to the National Curriculum

Please refer to the Mathematics Progression document on our Curriculum website page



How does this document work?

The aim of this document is to give an at-a-glance guide to how the White Rose Maths curriculum links to the Key Stage 1 and 2 National Curriculum, and how it progresses through topics.

In each of the major topic areas (Number, Measurement, Geometry and Statistics), the curriculum has been broken down into key areas. For each of these areas, you can then see which NC objectives are covered in that year, together with the term and block in which that objective is first met in the White Rose Maths schemes.

These are the NC objectives. In our schemes these are broken down into the small steps.

| Primary Progression – Place Value | | | | | | |
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| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Place Value: Counting | <ul style="list-style-type: none">count to and across 100, forwards and backwards, beginning with 0 or 1 or from any given numbercount numbers to 100 in numerals, count in multiples of tens, five and ones <p>Autumn 1 Autumn 4 Spring 2 Summer 4</p> | <ul style="list-style-type: none">count in steps of 2, 5, and 10 from 0 and in tens from any number, forward and backward <p>Autumn 1</p> | <ul style="list-style-type: none">count from 0 to 100 in steps of 10, 50 and 100, less 10 or 100 more or less than a given number <p>Autumn 1 Autumn 3</p> | <ul style="list-style-type: none">count from 0 to 1000 in steps of 10, 20 and 1000count backwards through zero to include negative numbers <p>Autumn 1</p> | <ul style="list-style-type: none">count forwards or backwards in steps of powers of 10 for any given number up to 1000/10000count forwards and backwards with positive and negative whole numbers, including through zero <p>Autumn 1</p> | |
| Place Value: Represent | <ul style="list-style-type: none">identify and represent numbers using objects and pictorial representations (tens and ones)read and write numbers to 100 in numeralsread and write numbers from 1 to 20 in numerals and words <p>Autumn 1 Autumn 4 Spring 2 Summer 4</p> | <ul style="list-style-type: none">read and write numbers to at least 100 in numerals and in wordsidentify, represent and estimate numbers using different representationsread and write numbers up to 1000 in numerals and in words <p>Autumn 1</p> | <ul style="list-style-type: none">identify, represent and estimate numbers using different representationsread and write numbers up to 1000 in numerals and in words <p>Autumn 1</p> | <ul style="list-style-type: none">identify, represent and estimate numbers using different representationsread and write numbers up to 1000/10000 in numerals and in wordsknow that one thousand, one hundred and one is 1001know that one thousand, one hundred and one is 1001 <p>Autumn 1</p> | <ul style="list-style-type: none">read, write, order and compare numbers to at least 1000/10000 and determine the value of each digitread Roman numerals to 1000read and write numbers in Roman numerals <p>Autumn 1</p> | <ul style="list-style-type: none">read, write, order and compare numbers up to 10 000/100 000 and determine the value of each digit <p>Autumn 1</p> |

Where this objective appears in our schemes of learning.