

Whole School Maths Progression Map



Aims of the document:

This document aims to:

- To give a guide to how the White Rose Maths curriculum links to the EYFS, Key Stage 1 and Key Stage 2 National Curriculum, and how it progresses through topics.
- Bring greater coherence to the National Curriculum by exposing core concepts in the National Curriculum and demonstrating progression from year 1 to year 6.
- Provide key endpoints for each year group.

What is included in the document?

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 version 3 of the White Rose Maths schemes.

How to use this document

This document can support long-term, medium-term and short-term planning, and assessment. At the long-term planning stage, this guidance can be used to ensure that the most important elements that underpin the curriculum are covered at the right time, and to ensure that there is continuity and consistency for pupils as they progress from one year group to the next. At the medium-term planning stage, teachers can use the guidance to inform decisions on how much teaching time to set aside for the different parts of the curriculum. At the short-term planning stage, the guidance can be used to inform teaching strategy. The document can also be used to support transition conversations between teachers of adjacent year groups, so that class teachers understand what pupils have been taught in the previous year group, how they have been taught it, and how effectively pupils have understood and remembered it.

Inclusion

Pupils should have access to a broad and balanced curriculum. The *National Curriculum Inclusion Statement* states that teachers should set high expectations for every pupil, whatever their prior attainment. Teachers should use appropriate assessment to set targets which are deliberately ambitious. Potential areas of difficulty should be identified and addressed at the outset. Lessons should be planned to address potential areas of difficulty and to remove barriers to pupil achievement. In many cases, such planning will mean that SEND and Disadvantaged pupils will be able to study the full national curriculum.

National Curriculum Aims

The National Curriculum for mathematics 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.
- Can 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.

EYFS

Children at the expected level of development by the end of the EYFS will:

- Have a deep understanding of number to 10, including the composition of each number.
- Be able to subitise up to 5.
- Automatically recall number bonds up to 5, and some number bonds to 10 (including subtraction and double facts).
- Verbally count beyond 20; recognising the pattern of the counting system.
- Compare quantities up to 10 in different contexts.
- Explore and represent patterns within numbers up to 10, including evens, odds, doubles and even distribution.

Key Stage 1

Pupils should:

- Develop confidence and mental fluency with whole numbers, counting and place value including working with numerals, words and the four operations.
- Develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary.
- Use a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.
- Know the number bonds to 20 and be precise in using and understanding place value, by the end of year 2.
- Read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Lower Key Stage 2

Pupils should:

- Become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value.
- Develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.
- Develop their ability to solve a range of problems, including with simple fractions and decimal place value.
- Draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them.
- Use measuring instruments with accuracy and make connections between measure and number.
- Have memorised their multiplication tables up to and including the 12 times table and show precision and fluency in their work, by the end of year 4.
- Read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Upper Key Stage 2

Pupils should:

- Extend their understanding of the number system and place value to include larger integers.
- Develop connections between multiplication and division with fractions, decimals, percentages and ratio.
- Develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation.
- Use algebra as a means for solving a variety of problems.
- Consolidate and extend knowledge developed in number within geometry and measures.
- Classify shapes with increasingly complex geometric properties and learn the vocabulary they need to describe them.
- Be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages, by the end of year 6.
- Pupils should read, spell and pronounce mathematical vocabulary correctly.

Place Value

| Place Value | | | | | | | | |
|------------------------------|--|--|--|--|--|--|---|--------|
| | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
| | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Place Value: Counting | <ul style="list-style-type: none"> develop fast recognition of up to 3 objects, without having to count them individually ('subsidising') recite numbers past 5 say one number for each item in order: 1, 2, 3, 4, 5 know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principal') | <ul style="list-style-type: none"> count objects, actions and sounds, up to 10 subitise with patterns, 5 and 10 frames, dots on dice, fingers, etc (up to 10) count beyond ten have a deep understanding of number to 10, including the composition of each number subitise (recognise quantities without counting) up to 5 verbally count beyond 20, recognising the pattern of the counting system | <ul style="list-style-type: none"> count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number count numbers to 100 in numerals; count in multiples of twos, fives and tens <p style="text-align: center;">Autumn 1 Spring 1 Spring 3 Summer 4</p> | <ul style="list-style-type: none"> count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward <p style="text-align: center;">Autumn 1</p> | <ul style="list-style-type: none"> count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number <p style="text-align: center;">Autumn 1 Autumn 3</p> | <ul style="list-style-type: none"> count in multiples of 6, 7, 9, 25 and 1000 count backwards through zero to include negative numbers <p style="text-align: center;">Autumn 1 Autumn 4</p> | <ul style="list-style-type: none"> count forwards and backwards in steps of powers of 10 for any given number up to 1,000,000 count forwards and backwards with positive and negative whole numbers, including through zero <p style="text-align: center;">Autumn 1 Summer 4</p> | |

Place Value

| Place Value | | | | | | | | |
|-------------------------------|--|---|---|---|---|---|---|---|
| | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
| | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Place Value: Represent | <ul style="list-style-type: none"> • show 'finger numbers' up to 5 • experiment with their own symbols and marks as well as numerals • link numerals and amounts [for example, showing the right number of objects to match the numeral, up to 5] | <ul style="list-style-type: none"> • link the number symbol (numeral) with its cardinal number value, up to 10 | <ul style="list-style-type: none"> • identify and represent numbers using objects and pictorial representations • read and write numbers to 100 in numerals • read and write numbers from 1 to 20 in numerals and words <p style="text-align: center;">Autumn 1 Spring 1 Spring 3 Summer 4</p> | <ul style="list-style-type: none"> • read and write numbers to at least 100 in numerals and in words • identify, represent and estimate numbers using different representations, including the number line <p style="text-align: center;">Autumn 1</p> | <ul style="list-style-type: none"> • read and write numbers to at least 1000 in numerals and in words • identify, represent and estimate numbers using different representations <p style="text-align: center;">Autumn 1</p> | <ul style="list-style-type: none"> • identify, represent and estimate numbers using different representations • read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value <p style="text-align: center;">Autumn 1</p> | <ul style="list-style-type: none"> • read, write (order and compare) numbers to at least 1,000,000 and determine the value of each digit • read Roman numerals to 1000 (M) and recognise years written in Roman numerals <p style="text-align: center;">Autumn 1</p> | <ul style="list-style-type: none"> • read, write (order and compare) numbers to at least 10,000,000 and determine the value of each digit <p style="text-align: center;">Autumn 1</p> |

Place Value

| Place Value | | | | | | | | |
|---|--|--|---|--|---|--|--|---|
| | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
| | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Place Value: Use Place Value & Compare | <ul style="list-style-type: none"> compare quantities using language: 'more than', 'fewer than' | <ul style="list-style-type: none"> compare numbers using vocabulary: 'more than', 'less than', 'fewer', 'the same as', 'equal to' understand the 'one more than/one less than' relationship between consecutive numbers Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity | <ul style="list-style-type: none"> given a number, identify one more and one less <p style="text-align: center;">Autumn 1 Spring 1 Spring 3 Summer 4</p> | <ul style="list-style-type: none"> recognise the place value of each digit in a two-digit number compare and order numbers from 0 up to 100; use <, > and = signs <p style="text-align: center;">Autumn 1</p> | <ul style="list-style-type: none"> recognise the place value of each digit in a three-digit number (hundreds, tens, ones) compare and order numbers up to 1000 <p style="text-align: center;">Autumn 1</p> | <ul style="list-style-type: none"> find 1000 more or less than a given number recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, ones) order and compare numbers beyond 1000 <p style="text-align: center;">Autumn 1</p> | <ul style="list-style-type: none"> (read, write) order and compare numbers to at least 1,000,000 and determine the value of each digit <p style="text-align: center;">Autumn 1</p> | <ul style="list-style-type: none"> (read, write) order and compare numbers to at least 10,000,000 and determine the value of each digit <p style="text-align: center;">Autumn 1</p> |

Place Value

| Place Value | | | | | | | | |
|----------------------------------|-----------|-----------|-------------|--|--|---|---|--|
| | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
| | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Place Value: Problems & Rounding | | | | <ul style="list-style-type: none"> • use place value and number facts to solve problems | <ul style="list-style-type: none"> • solve number problems and practical problems involving these ideas | <ul style="list-style-type: none"> • round any number to the nearest 10, 100 or 1000 • solve number and practical problems that involve all of the above with increasingly large positive numbers | <ul style="list-style-type: none"> • interpret negative numbers in context • round any number up to 1,000,000 to the nearest 10, 100, 1000, 10 000 and 100 000 • solve number and practical problems that involve all of the above | <ul style="list-style-type: none"> • round any whole number to a required degree of accuracy • use negative numbers in context, and calculate intervals across zero • solve number and practical problems that involve all of the above |
| | | | | Autumn 1 | Autumn 1 | Autumn 1 | Autumn 1 | Autumn 1 |

Addition & Subtraction

| | EYFS | | Key Stage 1 | | Key Stage 2 | | | Year 6 |
|---|-----------|---|--|--|---|--|---|--------|
| | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | |
| Addition & Subtraction: Recall, Represent, Use | | <ul style="list-style-type: none"> • explore the composition of numbers to 10 • automatically recall number bonds for numbers 0–10 • 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 | <ul style="list-style-type: none"> • read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs • represent and use number bonds and related subtraction facts within 20 <p style="text-align: center;">Autumn 2 Spring 1</p> | <ul style="list-style-type: none"> • recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • show the addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot • recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems <p style="text-align: center;">Autumn 2</p> | <ul style="list-style-type: none"> • estimate the answer to the calculation and use inverse operations to check answers <p style="text-align: center;">Autumn 2</p> | <ul style="list-style-type: none"> • estimate and use inverse operations to check answers to a calculation <p style="text-align: center;">Autumn 2</p> | <ul style="list-style-type: none"> • use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy <p style="text-align: center;">Autumn 2</p> | |

Addition & Subtraction

| | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
|--------------------------------------|-----------|-----------|--|---|---|--|---|--|
| | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Addition & Subtraction: Calculations | | | <ul style="list-style-type: none"> • add and subtract one-digit and two-digit numbers to 20, including zero | <ul style="list-style-type: none"> • add and subtract numbers using concrete objects, pictorial representations, and mentally, including: <ul style="list-style-type: none"> ☐ a two-digit number and ones ☐ a two-digit number and tens ☐ two two-digit numbers ☐ adding three one-digit numbers | <ul style="list-style-type: none"> • add and subtract numbers mentally, including: <ul style="list-style-type: none"> ☐ a three-digit number and ones ☐ a three-digit number and tens ☐ a three-digit number and hundreds • add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction | <ul style="list-style-type: none"> • add and subtract numbers with up to 4 digits using formal written methods of columnar addition and subtraction where appropriate | <ul style="list-style-type: none"> • add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) • add and subtract numbers mentally with increasingly large numbers | <ul style="list-style-type: none"> • perform mental calculations, including with mixed operations and large numbers • use their knowledge of the order of operations to carry out calculations involving the four operations |
| | | | Autumn 2 Spring 2 | Autumn 2 | Autumn 2 | Autumn 2 | Autumn 2 | Autumn 2 |

Addition & Subtraction

| | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
|---|---|--|--|--|---|--|--|---|
| | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Addition & Subtraction: Solve Problems | <ul style="list-style-type: none"> • solve real world mathematical problems with numbers up to 5 | <ul style="list-style-type: none"> • solve real world mathematical problems with numbers up to 10 | <ul style="list-style-type: none"> • solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = - 9$ <p style="text-align: right;">Autumn 2 Spring 2</p> | <ul style="list-style-type: none"> • solve problems with addition and subtraction: <ul style="list-style-type: none"> ☑ using concrete objects and pictorial representations, including those involving numbers, quantities and measures ☑ applying their increasing knowledge of mental and written methods <p style="text-align: right;">Autumn 2</p> | <ul style="list-style-type: none"> • solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction <p style="text-align: right;">Autumn 2</p> | <ul style="list-style-type: none"> • solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why <p style="text-align: right;">Autumn 2</p> | <ul style="list-style-type: none"> • solve addition and subtraction multi-step problems and contexts, deciding which operations and methods to use and why • solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equal sign <p style="text-align: right;">Autumn 2</p> | <ul style="list-style-type: none"> • solve addition and subtraction multi-step problems and contexts, deciding which operations and methods to use and why <p style="text-align: right;">Autumn 2</p> |

Multiplication & Division

| | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
|--|-----------|--|---|---|---|--|---|--|
| | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Multiplication & Division: Recall, Represent, Use | | <ul style="list-style-type: none"> explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally | <ul style="list-style-type: none"> count in 2s, 5s and 10s up to 100 | <ul style="list-style-type: none"> recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers show that multiplication of two numbers can be done in any order (commutative) and division of one number by any other cannot | <ul style="list-style-type: none"> recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables | <ul style="list-style-type: none"> recall multiplication and division facts for multiplication tables up to 12 x 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 | <ul style="list-style-type: none"> identify multiples and factors, including finding all factor pairs of a numbers, and common factors of two numbers know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers establish whether a number up to 100 is prime and recall prime numbers up to 19 recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) | <ul style="list-style-type: none"> identify common factors, common multiples and prime numbers use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy |
| | | | <p>Spring 2 Summer 1</p> | <p>Autumn 4 Spring 2</p> | <p>Autumn 3 Spring 1</p> | <p>Autumn 4 Spring 1</p> | <p>Autumn 3</p> | <p>Autumn 2</p> |

Multiplication & Division

| | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
|---|-----------|-----------|-------------|---|--|--|--|--|
| | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Multiplication & Division: Calculations | | | | <ul style="list-style-type: none"> calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals (=) signs <p style="text-align: right;">Spring 2</p> | <ul style="list-style-type: none"> write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including two-digit numbers times one-digit numbers, using mental and progressing to formal written methods <p style="text-align: right;">Autumn 3 Spring 1</p> | <ul style="list-style-type: none"> multiply two-digit and three-digit numbers by a one-digit number using formal written layout <p style="text-align: right;">Spring 1</p> | <ul style="list-style-type: none"> multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers multiply and divide numbers mentally drawing upon known facts divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 <p style="text-align: right;">Autumn 3 Spring 1</p> | <ul style="list-style-type: none"> multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context divide numbers up to four digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context perform mental calculations, including with mixed operations and large numbers <p style="text-align: right;">Autumn 2</p> |

Multiplication & Division

| | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
|--|-----------|-----------|---|--|---|--|---|--|
| | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Multiplication & Division: Solve Problems | | | <ul style="list-style-type: none"> solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher | <ul style="list-style-type: none"> solve problems using multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts | <ul style="list-style-type: none"> solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects | <ul style="list-style-type: none"> solve problems involving multiplying and adding, including using the distributive law to multiply two numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects | <ul style="list-style-type: none"> solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates | <ul style="list-style-type: none"> solve problems involving addition, subtraction, multiplication and division |
| | | | Summer 1 | Spring 2 | Spring 1 | Spring 1 | Autumn 3 Spring 1 | Autumn 2 |
| Multiplication & Division: Combined Operations | | | | | | | <ul style="list-style-type: none"> solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equal sign | <ul style="list-style-type: none"> use their knowledge of the order of operations to carry out calculations involving the four operations |
| | | | | | | | Spring 1 | Autumn 2 |

Fractions, Decimals & Percentages

| | | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
|------------------------------|--|-----------|-----------|--|--|---|--|---|----------|
| | | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Fractions: Recognise & Write | | | | <ul style="list-style-type: none"> recognise, find and name a half as one of two equal parts of an object, shape or quantity recognise, find and name a quarter as one of four equal parts of an object, shape or quantity | <ul style="list-style-type: none"> recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity | <ul style="list-style-type: none"> count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and dividing one-digit numbers or quantities by 10 recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators | <ul style="list-style-type: none"> count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten | <ul style="list-style-type: none"> identify, name and write equivalent fractions of a give fraction, represented visually, including tenths and hundredths recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements >1 as a mixed number [for example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1 \frac{1}{5}$] | |
| | | | | Summer 2 | Summer 1 | Spring 3 | Spring 4 Summer 1 | Autumn 4 | |
| Fractions: Compare | | | | <ul style="list-style-type: none"> recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$ | <ul style="list-style-type: none"> recognise and show, using diagrams, equivalent fractions with small denominators compare and order unit fractions, and fractions with the same denominators | <ul style="list-style-type: none"> recognise and show, using diagrams, families of common equivalent fractions | <ul style="list-style-type: none"> compare and order fractions whose denominators are all multiples of the same number | <ul style="list-style-type: none"> use common factors to simplify fractions; use common multiples to express fractions in the same denomination compare and order fractions, including fractions >1 | |
| | | | | | Summer 1 | Spring 3 | Spring 3 | Autumn 4 | Autumn 3 |

Fractions, Decimals & Percentages

| | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
|---------------------------|-----------|-----------|-------------|---|---|---|---|--|
| | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Fractions: Calculations | | | | <ul style="list-style-type: none"> write simple fractions for example, $\frac{1}{2}$ of 6 = 3 <p style="text-align: right;">Summer 1</p> | <ul style="list-style-type: none"> add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$] <p style="text-align: right;">Summer 1</p> | <ul style="list-style-type: none"> add and subtract fractions with the same denominator <p style="text-align: right;">Spring 3</p> | <ul style="list-style-type: none"> add and subtract fractions with the same denominator and denominators that are multiples of the same number multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams <p style="text-align: right;">Autumn 4 Spring 2</p> | <ul style="list-style-type: none"> add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$] divide proper fractions by whole numbers [for example, $\frac{1}{3} \div 2 = \frac{1}{6}$] <p style="text-align: right;">Autumn 3 Autumn 4</p> |
| Fractions: Solve Problems | | | | | <ul style="list-style-type: none"> solve problems that involve all of the above <p style="text-align: right;">Spring 3 Summer 1</p> | <ul style="list-style-type: none"> 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 <p style="text-align: right;">Spring 3</p> | | |

Fractions, Decimals & Percentages

| | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
|-----------------------------|-----------|-----------|-------------|--------|-------------|---|---|---|
| | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Decimals: Recognise & Write | | | | | | <ul style="list-style-type: none"> recognise and write decimal equivalents of any number of tenths or hundredths recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ <p style="text-align: right;">Spring 4 Summer 1</p> | <ul style="list-style-type: none"> read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$] recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents <p style="text-align: right;">Spring 3 Summer 3</p> | <ul style="list-style-type: none"> identify the value of each digit in numbers given to three decimal places <p style="text-align: right;">Spring 3</p> |
| Decimals: Compare | | | | | | <ul style="list-style-type: none"> round decimals with one decimal place to the nearest whole number compare numbers with the same number of decimal places up to two decimal places <p style="text-align: right;">Summer 1</p> | <ul style="list-style-type: none"> round decimals with two decimal places to the nearest whole number and to one decimal place read, write order and compare numbers with up to three decimal places <p style="text-align: right;">Spring 3 Summer 3</p> | |

Fractions, Decimals & Percentages

| | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
|--|-----------|-----------|-------------|--------|-------------|--|--|--|
| | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Decimals: Calculations & Problems | | | | | | <ul style="list-style-type: none"> find the effect of dividing a one- of two-digit number by 10 and 100, identifying the value of digits in the answer as ones, tenths and hundredths | <ul style="list-style-type: none"> solve problems involving number up to three decimal places | <ul style="list-style-type: none"> multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places multiply one-digit numbers with up to two decimal places by whole numbers use written division methods in cases where the answer has up to two decimal places solve problems which require answers to be rounded to specified degrees of accuracy |
| | | | | | | Spring 4 | Summer 1 | Spring 3 |

Fractions, Decimals & Percentages

| | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
|-----------------------------------|-----------|-----------|-------------|--------|-------------|--|---|--|
| | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Fractions, Decimals & Percentages | | | | | | <ul style="list-style-type: none"> • solve simple measure and money problems involving fractions and decimals to two decimal places | <ul style="list-style-type: none"> • recognise the percent symbol (%) and understand that percent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal • solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25 | <ul style="list-style-type: none"> • associate a fraction with division and calculate decimal equivalents [for example, 0.375] for a simple fraction [for example, $\frac{3}{8}$] • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts |
| | | | | | | <p>Spring 3 Spring 4 Summer 1</p> | <p>Spring 3</p> | <p>Spring 3 Spring 4</p> |

Ratio & Proportion

| | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
|--------------------|-----------|-----------|-------------|--------|-------------|--------|--------|--|
| | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Ratio & Proportion | | | | | | | | <ul style="list-style-type: none"> • solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts • solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison • solve problems involving similar shapes where the scale factor is known or can be found • solve problems involving unequal sharing and grouping using knowledge of fractions and multiples <p>Spring 1</p> |

Algebra

| Algebra | | | | | | | | |
|---------|-----------|-----------|---|---|---|--------|--------|---|
| | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
| | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Algebra | | | <ul style="list-style-type: none"> • solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = - 9$ | <ul style="list-style-type: none"> • recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. | <ul style="list-style-type: none"> • solve problems, including missing number problems | | | <ul style="list-style-type: none"> • use simple formulae • generate and describe linear number sequences • express missing number problems algebraically • find pairs of numbers that satisfy an equation with two unknowns • enumerate possibilities of combinations of two variables |
| | | | | | | | | Spring 2 |

Note – although algebraic notation is not introduced until Y6, algebraic thinking starts much earlier as exemplified by the ‘missing number’ objectives from Y1/2/3

Measurement

| | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
|--|-----------------------------|--|---|---|--|--|--|---|
| | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | Measurement: Using Measures | <ul style="list-style-type: none"> • make comparisons between objects relating to size, length, weight and capacity | <ul style="list-style-type: none"> • compare length, weight and capacity by making predictions and using vocabulary 'than' [for example, "This is heavier than that."] | <ul style="list-style-type: none"> • compare, describe and solve practical problems for: <ul style="list-style-type: none"> -lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] -mass/weight [for example, heavy/light, heavier/lighter, lighter than] -capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] -time [for example, quicker, slower, earlier, later] • measure and begin to record the following: <ul style="list-style-type: none"> -lengths and heights -mass/weight -capacity and volume -time (hours, minutes, seconds) | <ul style="list-style-type: none"> • choose and use appropriate standard units to estimate and measure length/height in any direction (m, cm); mass (kg/g); temperature (oC); capacity (litres, ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels • compare and order lengths, mass, volume/capacity and record the results using >, < and = | <ul style="list-style-type: none"> • measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) | <ul style="list-style-type: none"> • Convert between different units of measure [for example, kilometre to metre; hour to minute] • estimate, compare and calculate different measures | <ul style="list-style-type: none"> • convert between different units of metric measure (for example, kilometre and metre; centimetre and metre, centimetre and millimetre; gram and kilogram; litre and millilitre) • understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling |

Spring 4
Spring 5
Summer 6

Spring 3
Spring 4

Spring 2
Spring 4

Spring 2
Summer 3

Spring 4
Summer 5
Summer 6

Autumn 5

Measurement

| | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
|---------------------------|-----------|-----------|--|---|---|---|--|--------|
| | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Measurement: Money | | | <ul style="list-style-type: none"> recognise and know the value of different denominations of coins and notes <p style="text-align: right;">Summer 5</p> | <ul style="list-style-type: none"> recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value find different combinations of coins that equal the same amounts of money solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change <p style="text-align: right;">Spring 1</p> | <ul style="list-style-type: none"> add and subtract amounts of money to give changes, using both £ and p in practical contexts <p style="text-align: right;">Summer 2</p> | <ul style="list-style-type: none"> estimate, compare and calculate different measures, including money in pounds and pence <p style="text-align: right;">Summer 2</p> | <ul style="list-style-type: none"> use all four operations to solve problems involving measure [for example, money] <p style="text-align: right;">Summer 3</p> | |

Measurement

| | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
|--------------------------|---|-----------|--|--|---|--|---|--|
| | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Measurement: Time | <ul style="list-style-type: none"> begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...' | | <ul style="list-style-type: none"> sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] recognise and use language relating to dates, including days of the week, weeks, months and years tell the time to the hour and half past the hour and draw the hands on a clock face to show these times | <ul style="list-style-type: none"> compare and sequence intervals of time tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times know the number of minutes in an hour and the number of hours in a day | <ul style="list-style-type: none"> 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] | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> solve problems involving converting between units of time | <ul style="list-style-type: none"> use, read, write and convert between standard units, converting measurements of time from a smaller unit of measure to a larger unit, and vice versa |
| | | | Summer 6 | Summer 2 | Summer 3 | Summer 3 | Summer 5 | Autumn 5 |

Measurement

| | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
|--------------------------------------|-----------|-----------|-------------|--------|--|--|---|---|
| | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Measurement: Perimeter, Area, Volume | | | | | <ul style="list-style-type: none"> measure the perimeter of simple 2-D shapes | <ul style="list-style-type: none"> measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres find the area of rectilinear shapes by counting squares | <ul style="list-style-type: none"> measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water] | <ul style="list-style-type: none"> recognise that shapes with the same areas can have different perimeters and vice versa recognise when it is possible to use formulae for area and volume of shapes calculate the area of parallelograms and triangles calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending to other units [for example, mm³ and km³] |
| | | | | | Spring 2 | Autumn 3 Spring 2 | Spring 4 Summer 6 | Spring 5 |

Geometry

| | | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
|---------------------|--|---|---|--|---|--|--|---|--|
| | | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Geometry: 2D Shapes | <ul style="list-style-type: none"> talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'. | <ul style="list-style-type: none"> select, rotate and manipulate shapes in order to develop spatial reasoning skills compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can | <ul style="list-style-type: none"> recognise and name common 2-D shapes [for example, rectangles (including squares), circles and triangles] | <ul style="list-style-type: none"> identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] compare and sort common 2-D shapes and everyday objects | <ul style="list-style-type: none"> draw 2-D shapes <p>Summer 4</p> | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> distinguish between regular and irregular polygons based on reasoning about equal sides and angles use the properties of rectangles to deduce related facts and find missing lengths and angles | <ul style="list-style-type: none"> draw 2-D shapes using given dimensions and angles compare and classify geometric shapes based on their properties and sizes illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius | <p>Autumn 3</p> <p>Autumn 3</p> <p>Summer 4</p> <p>Summer 1</p> <p>Summer 1</p> |
| | <ul style="list-style-type: none"> select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc. combine shapes to make new ones - an arch, a bigger triangle etc. | <ul style="list-style-type: none"> select, rotate and manipulate shapes in order to develop spatial reasoning skills | <ul style="list-style-type: none"> recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres] | <ul style="list-style-type: none"> recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres] compare and sort common 3-D shapes and everyday objects | <ul style="list-style-type: none"> make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them | <ul style="list-style-type: none"> identify 3-D shapes, including cubes and other cuboids, from 2-D representations | <ul style="list-style-type: none"> recognise, describe and build simple 3-D shapes, including making nets | <p>Autumn 3</p> <p>Autumn 3</p> <p>Summer 4</p> <p>Summer 1</p> <p>Summer 1</p> | |

Geometry

| | | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
|--------------------------|--|-----------|-----------|-------------|--------|--|--|--|--|
| | | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Geometry: Angles & Lines | | | | | | <ul style="list-style-type: none"> recognise angles as a property of shape of a description of a turn identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle identify horizontal and vertical lines and pairs of perpendicular and parallel lines | <ul style="list-style-type: none"> identify acute and obtuse angles and compare and order angles up to two right angles by size 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 | <ul style="list-style-type: none"> know angles are measure in degrees: estimate and compare acute, obtuse and reflex angles draw given angles, and measure them in degrees identify: <ul style="list-style-type: none"> angles at a point and one whole turn (total 360o) angles at a point on a straight line and ½ a turn (total 180o) other multiples of 90o | <ul style="list-style-type: none"> find unknown angles in any triangles, quadrilaterals, and regular polygons recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles |
| | | | | | | Summer 4 | Summer 4 | Summer 2 | Summer 1 |

Geometry

| | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
|--|---|--|---|---|---|--------|---|---|
| | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | Geometry: Position & Direction | <ul style="list-style-type: none"> understand position through words alone – for example, “The bag is under the table,” – with no pointing describe a familiar route discuss routes and locations, using words like ‘in front of’ and ‘behind’ talk about and identify the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like ‘pointy’, ‘spotty’, ‘blobs’ etc. extend and create ABAB patterns – stick, leaf, stick, leaf notice and correct an error in a repeating pattern | <ul style="list-style-type: none"> continue, copy and create repeating patterns [including AB, ABB and ABBC] | <ul style="list-style-type: none"> describe position, direction and movement, including whole, half, quarter and three-quarter turns <p style="text-align: right;">Summer 3</p> | <ul style="list-style-type: none"> order and arrange combinations of mathematical objects in patterns and sequences use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise) <p style="text-align: right;">Summer 4</p> | | <ul style="list-style-type: none"> describe positions on a 2-D grid as coordinates in the first quadrant describe movements between positions as translations of a given unit to the left/right and up/down plot specified points and draw sides to complete a given polygon <p style="text-align: right;">Summer 6</p> | <ul style="list-style-type: none"> identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed <p style="text-align: right;">Summer 2</p> |

Statistics

| Statistics | | | | | | | | |
|---------------------------------|-----------|-----------|-------------|--|--|--|---|--|
| | EYFS | | Key Stage 1 | | Key Stage 2 | | | |
| | 3-4 years | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Statistics: Present & Interpret | | | | <ul style="list-style-type: none"> interpret and construct simple pictograms, tally charts, block diagrams and simple tables | <ul style="list-style-type: none"> interpret and present data using bar charts, pictograms and tables | <ul style="list-style-type: none"> interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs | <ul style="list-style-type: none"> complete, read and interpret information in tables, including timetables | <ul style="list-style-type: none"> interpret and construct pie charts and line graphs and use these to solve problems |
| | | | | Summer 3 | Summer 5 | Summer 5 | Spring 5 | Spring 6 |
| Statistics: Solve Problems | | | | <ul style="list-style-type: none"> ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity ask and answer questions about totalling and comparing categorical data | <ul style="list-style-type: none"> solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables | <ul style="list-style-type: none"> solve comparison sum and different problems using information presented in bar charts, pictograms, tables and other graphs | <ul style="list-style-type: none"> solve comparison, sum and difference problems using information presented in a line graph | <ul style="list-style-type: none"> calculate and interpret the mean as an average |
| | | | | Summer 3 | Summer 5 | Summer 5 | Spring 5 | Spring 6 |