# Mathematics: Progression of Knowledge and Skills

By the end of Key Stage 1, children will have developed a secure foundation in mathematical knowledge and skills, becoming confident, curious and enthusiastic young mathematicians. They will understand number, place value, the four operations, fractions, measurement, geometry and statistics. Children will use practical resources, mathematical vocabulary and different strategies to solve problems, explain their thinking and develop fluency and reasoning, preparing them for more complex mathematics in Key Stage 2.

By the end of Key Stage 2, children will have developed secure mathematical knowledge and skills, becoming confident, fluent and independent mathematicians. They will apply their understanding of number, calculation, fractions, decimals, percentages, ratio, algebra, measurement, geometry and statistics to increasingly complex problems. Children will reason mathematically, explain and justify their thinking, select efficient strategies and make connections between mathematical concepts, preparing them to apply mathematics confidently in everyday life and at secondary school.

| Half-term | EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|---|
| Autumn 1 | Counting, subitising and matching; comparing and sorting objects; exploring patterns | Previous Reception experiences and counting within 100 | Numbers 10 to 100<br>Calculations within 20 | Adding and subtracting across 10<br>Numbers to 1,000 | Review of column addition and subtraction<br>Numbers to 10,000 | Decimal fractions<br>Money | Calculating using knowledge of structures (1) |
| Autumn 2 | Composition of numbers to 5; one more and one less; shapes and spatial language | Previous Reception experiences and counting within 100<br>Comparison of quantities and part–whole relationships<br>Numbers 0 to 5 | Calculations within 20<br>Fluently add and subtract within 10<br>Two-digit addition and subtraction (1)<br>Introduction to multiplication | Numbers to 1,000 | Numbers to 10,000<br>Perimeter<br>3, 6 and 9 times tables | Money<br>Negative numbers<br>Short multiplication and short division | Multiples of 1,000<br>Numbers up to 10,000,000 |
| Spring 1 | Numbers to 5 and beyond; comparing quantities; mass, capacity and length | 2D and 3D shapes<br>Numbers 0 to 10 | Introduction to multiplication<br>Introduction to division structures | Right angles<br>Additive relationships and mental calculation | 3, 6 and 9 times tables<br>7 times table and patterns<br>Multiplicative relationships | Short multiplication and short division<br>Area and scaling | Draw, compose and decompose shapes<br>Multiplication and division |
| Spring 2 | Number bonds to 5 and 10; building numbers beyond 10; 2D and 3D shapes | Additive structures<br>Addition and subtraction facts within 10 | Introduction to division structures<br>Shape<br>Two-digit addition and subtraction (2) | Column addition<br>2, 4 and 8 times tables<br>Column subtraction | Multiplicative relationships<br>Coordinates<br>Review of fractions | Area and scaling<br>Calculating with decimal fractions<br>Factors, multiples and primes | Area, perimeter, position and direction<br>Fractions and percentages |
| Summer 1 | Counting beyond 10; adding and taking away with practical objects; repeating patterns | Addition and subtraction facts within 10<br>Numbers 0 to 20<br>Unitising and coin recognition | Money<br>Fractions<br>Time<br>Position and direction<br>Multiplication and division: doubling, halving and division structures | Unit fractions<br>Non-unit fractions | Fractions greater than 1<br>Symmetry in 2D shapes | Factors, multiples and primes<br>Fractions | Fractions and percentages<br>Statistics<br>Ratio and proportion<br>Calculating using knowledge of structures (2) |
| Summer 2 | Deepening understanding of numbers to 10; sharing, grouping and spatial reasoning | Unitising and coin recognition<br>Position and direction<br>Time | Multiplication and division: doubling, halving and division structures<br>Capacity, volume and mass | Non-unit fractions<br>Parallel and perpendicular sides in polygons<br>Time | Symmetry in 2D shapes<br>Time<br>Division with remainders | Fractions<br>Converting units | Solving problems with two unknowns<br>Order of operations<br>Mean average |

## Number and place value

| Strand / progression focus | Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|---|---|
| **Counting and number sequence** | I can say number names in order and count small sets with one-to-one correspondence. | I can count beyond 20 and match number names, numerals and quantities. | I can count forwards and backwards to 100 and count in 2s, 5s and 10s. | I can count in 2s, 3s, 5s and 10s from different starting points. | I can count in 4s, 8s, 50s and 100s and find 10 or 100 more or less. | I can count in 6s, 7s, 9s, 25s and 1,000s, including backwards through zero. | I can count in powers of 10 and interpret negative numbers in context. | I can work with positive and negative numbers, including intervals across zero. |
| **Subitising and composition** | I can recognise up to three objects without counting and explore small groups. | I can subitise to five and explain how numbers to ten are made from smaller parts. | I can represent and partition numbers to 20, recognising tens and ones. | I can compose and partition two-digit numbers in more than one way. | I can compose and partition three-digit numbers, including non-standard partitions. | I can compose and partition four-digit numbers and explain the value of each digit. | I can compose numbers to at least one million and understand tenths and hundredths. | I can compose numbers to ten million, including decimals, using powers of ten. |
| **Comparing, ordering and rounding** | I can use more, fewer and same when comparing groups. | I can compare quantities to ten and explain one more or one less. | I can compare and order numbers to 100 using number lines and comparison signs. | I can compare and order numbers to 100 and locate them between tens. | I can compare and order numbers to 1,000 and round to the nearest 10 or 100. | I can order numbers beyond 1,000 and round to the nearest 10, 100 or 1,000. | I can round numbers up to one million and decimals to the nearest whole or tenth. | I can round whole numbers and decimals to required degrees of accuracy. |
| **Reading and representing numbers** | I can match some numerals to quantities up to five. | I can recognise, write and represent numbers to ten and explore numbers beyond. | I can read and write numbers to 100 and number words to 20. | I can read and write numbers to at least 100 in numerals and words. | I can read and write numbers to 1,000 in numerals and words. | I can represent four-digit numbers and read Roman numerals to 100. | I can read numbers to one million and Roman numerals to 1,000. | I can read and write numbers to ten million and use place value flexibly. |

## Addition and subtraction

| Strand / progression focus | Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|---|---|
| **Number bonds and relationships** | I can combine and separate small groups in play. | I can recall bonds to five and some bonds to ten, including doubles. | I can recall bonds within 20 and use related subtraction facts. | I can recall facts to 20 fluently and derive related facts to 100. | I can use complements to 100 and the inverse relationship to check calculations. | I can apply known additive facts and inverse operations to larger numbers. | I can use rounding and inverse operations to assess reasonableness. | I can derive related calculations and explain additive relationships algebraically. |
| **Mental and written calculation** | I can find one more or one less in familiar situations. | I can add and take away with objects and recognise one more and one less. | I can add and subtract one- and two-digit numbers to 20. | I can add and subtract within 100 using efficient mental and written strategies. | I can add and subtract three-digit numbers using column methods. | I can add and subtract numbers with up to four digits using formal methods. | I can add and subtract numbers with more than four digits, including mentally. | I can calculate with large numbers and mixed operations, applying order of operations. |
| **Problems and reasoning** | I can solve practical problems involving small groups. | I can solve practical problems with numbers to ten and explain my approach. | I can solve one-step addition and subtraction problems, including missing numbers. | I can solve addition and subtraction problems involving measures and missing values. | I can solve problems using place value, facts and written methods. | I can select methods for two-step addition and subtraction problems. | I can solve multi-step problems and explain my choice of operations. | I can solve complex multi-step problems, estimating and checking answers. |

## Multiplication and division

| Strand / progression focus | Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|---|---|
| **Equal groups, arrays and sharing** | I can notice equal and unequal groups in play. | I can share small groups fairly and explore doubles. | I can make equal groups and arrays and use doubling and sharing. | I can represent repeated addition, grouping and sharing with multiplication and division. | I can interpret multiplication and division as grouping and sharing and use arrays. | I can use factor pairs and distributive relationships to explain multiplication. | I can identify factors, multiples, primes and composite numbers. | I can use common factors, common multiples and prime factors in problems. |

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| **Times tables and fluency** | I can recognise patterns and repeated quantities. | I can recall some doubles and identify odd and even quantities. | I can count in 2s, 5s and 10s and use related patterns. | I can recall multiplication and division facts for 2, 5 and 10. | I can recall facts for 3, 4 and 8 as well as earlier tables. | I can recall multiplication and division facts up to 12 × 12. | I can recall all tables to 12 × 12 and use them to derive other facts. | I can apply multiplication facts fluently to fractions, ratio and algebra. |
| **Written multiplication and division** | I can share and group objects with support. | I can use practical sharing and doubling in simple situations. | I can solve one-step multiplication and division problems with objects. | I can calculate multiplication and division with arrays and known facts. | I can multiply two-digit by one-digit numbers using written methods. | I can multiply two- and three-digit numbers by one digit and divide with remainders. | I can multiply up to four digits by one or two digits and divide up to four digits by one digit. | I can multiply multi-digit numbers by two-digit numbers and use short/long division as appropriate. |
| **Scaling and order of operations** | I can compare larger and smaller groups. | I can explore doubling and halving quantities. | I can recognise doubles and halves in practical contexts. | I can solve simple multiplication and division problems in context. | I can solve scaling and correspondence problems using known facts. | I can multiply and divide whole numbers by 10 and 100. | I can multiply and divide by 10, 100 and 1,000, including decimals. | I can use order of operations and solve scaling and ratio problems. |

## Fractions, decimals and percentages

| Strand / progression focus | Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|---|---|
| **Equal parts and fractions** | I can share objects and talk about parts and wholes. | I can recognise equal sharing and halves in practical contexts. | I can recognise and find halves and quarters of shapes, objects and quantities. | I can find and write halves, thirds, quarters and simple fractions of quantities. | I can recognise unit and non-unit fractions and compare fractions with the same denominator. | I can recognise equivalent fractions and fractions greater than one. | I can identify equivalent fractions, mixed numbers and improper fractions. | I can simplify and compare fractions using common factors and denominators. |
| **Calculating with fractions** | I can combine parts to make a whole in play. | I can explain that two equal halves make one whole. | I can find half and quarter of simple quantities. | I can find simple fractions of shapes and numbers. | I can add and subtract fractions with the same denominator within one whole. | I can add and subtract fractions with the same denominator and solve fraction problems. | I can add and subtract fractions with related denominators and multiply fractions by whole numbers. | I can add, subtract, multiply and divide fractions, including mixed-number contexts. |
| **Decimal place value** | I can notice parts of a whole through measuring and play. | I can compare quantities and use informal language for parts. | Not separately specified; whole-number place value is the foundation. | Not separately specified; fractions and money prepare for decimal notation. | I can recognise tenths and relate them to division by ten. | I can recognise hundredths and write decimal equivalents of common fractions. | I can read, order and round decimals to three decimal places. | I can calculate with decimals to three places and round appropriately. |
| **Percentages and equivalence** | I can talk about full, empty and part-full. | I can recognise equal parts through sharing. | I can recognise halves and quarters as equal parts. | I can relate simple fractions to familiar quantities. | I can identify equivalent representations of simple fractions. | I can connect tenths and hundredths to decimal notation. | I can recognise percentages and connect common percentages to fractions and decimals. | I can recall and use fraction, decimal and percentage equivalences in problems. |

## Measurement

| Strand / progression focus | Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|---|---|
| **Length, mass, capacity and volume** | I can compare size, weight and capacity using everyday language. | I can measure and compare objects using informal and familiar units. | I can compare and measure length, mass and capacity using appropriate units. | I can measure with standard units and compare lengths, mass, capacity and temperature. | I can measure perimeter and use appropriate metric units. | I can convert between common units and calculate perimeter of rectilinear shapes. | I can convert between metric units, estimate volume and calculate perimeter. | I can convert units, including miles and kilometres, and solve volume problems. |
| **Time and money** | I can recognise daily routines and sequence events. | I can order events and use language about time and money in play. | I can tell time to the hour and half-hour and recognise coins and notes. | I can tell time to five minutes and solve simple money problems. | I can tell time to the nearest minute and use 12- and 24-hour clocks. | I can convert between analogue and digital time and calculate durations. | I can solve problems involving units of time and money, including conversions. | I can solve multi-step time and money problems, selecting efficient calculations. |

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| **Area, perimeter and volume** | I can build shapes and compare the space they cover. | I can compare shapes and areas informally. | I can describe and compare lengths and shapes. | I can measure lengths and begin to recognise perimeter as boundary. | I can calculate perimeters of simple 2D shapes. | I can find area by counting squares and calculate perimeter of rectilinear shapes. | I can calculate area of rectangles and estimate area and volume. | I can calculate area of triangles and parallelograms and volume of cuboids. |

## Geometry

| Strand / progression focus | Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|---|---|
| **2D and 3D shape properties** | I can explore and name familiar shapes in play. | I can recognise and describe common 2D and 3D shapes. | I can name common shapes and describe basic properties. | I can identify 2D and 3D shapes, including sides, vertices, edges and faces. | I can describe properties of 2D and 3D shapes and identify right angles. | I can classify shapes using properties and recognise different triangles and quadrilaterals. | I can identify 3D shapes from 2D representations and distinguish regular polygons. | I can recognise, describe and build simple 3D shapes, including nets. |
| **Position, direction and transformation** | I can describe where objects are using positional language. | I can explore patterns, routes and position in practical contexts. | I can describe position, direction and turns, including halves and quarters. | I can describe movement and turns and order objects in patterns. | I can recognise horizontal, vertical, parallel and perpendicular lines. | I can describe positions on a grid in the first quadrant and translate shapes. | I can reflect and translate shapes and identify coordinates in the first quadrant. | I can describe positions in all four quadrants and translate and reflect shapes. |
| **Angles and circles** | I can turn and rotate objects during play. | I can describe turns and compare shapes informally. | I can describe full, half and quarter turns. | I can recognise right angles in practical contexts. | I can identify right angles and compare angles to right angles. | I can measure angles in degrees and classify acute and obtuse angles. | I can measure and draw angles and calculate angles around points and lines. | I can calculate missing angles in triangles, quadrilaterals and polygons; name parts of circles. |

## Statistics

| Strand / progression focus | Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|---|---|
| **Collecting and interpreting data** | I can sort objects by a chosen feature. | I can sort and compare groups and explain simple patterns. | I can organise and compare information using simple representations. | I can interpret and construct pictograms, tally charts and simple tables. | I can interpret and present bar charts, pictograms and tables. | I can interpret and present discrete and continuous data, including line graphs. | I can interpret line graphs and tables, including timetables. | I can interpret and construct pie charts and line graphs and calculate the mean. |

## Ratio, proportion and algebra

| Strand / progression focus | Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|---|---|
| **Patterns and unknowns** | I can notice and continue repeating patterns. | I can identify and create repeating patterns and missing parts. | I can solve missing-number problems with addition and subtraction. | I can solve missing-number problems involving the four operations. | I can solve missing-number problems and recognise arithmetic patterns. | I can explore number patterns and express relationships using known facts. | I can identify and explain patterns and missing values, including scaling. | I can use simple formulae, sequences, equations with unknowns and ratio notation. |
| **Ratio and proportion** | I can compare groups using more and fewer. | I can compare quantities and share fairly. | I can solve simple sharing and grouping problems. | I can use multiplication to compare equal groups. | I can solve scaling and correspondence problems. | I can use multiplication to compare and scale quantities. | I can use fractions and multiplication to solve scaling problems. | I can solve problems involving relative sizes, percentages, unequal sharing and scale factors. |

## Mathematical thinking

| Strand / progression focus | Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| **Fluency and retrieval** | I can recognise and use familiar number patterns in play. | I can recall number bonds and subitise with growing confidence. | I can recall bonds to 20 and practise counting patterns. | I can use number facts to calculate accurately and efficiently. | I can retrieve multiplication facts and use place value to derive facts. | I can recall tables to 12 × 12 and use facts flexibly. | I can use fluent recall to calculate with larger numbers and decimals. | I can select and apply known facts efficiently across all strands. |
| **Reasoning and problem solving** | I can explain choices when sorting, sharing and comparing. | I can describe patterns and explain how I know. | I can explain my methods with objects, pictures and mathematical language. | I can compare strategies and explain why an answer makes sense. | I can justify solutions using representations and inverse relationships. | I can reason about patterns and select efficient strategies. | I can solve multi-step problems and explain connections between concepts. | I can generalise, justify and evaluate solutions to unfamiliar multi-step problems. |

## Implementation and assessment notes

- Use concrete and pictorial representations before moving towards abstract methods, while revisiting them whenever needed.
- Teach explicit mathematical vocabulary, reasoning and problem solving throughout the curriculum, rather than as isolated units.
- Use short, purposeful retrieval to revisit prior learning and check that pupils know more and remember more.
- Check NCETM ready-to-progress priorities within each year group alongside the full statutory curriculum.
- Provide timely scaffolding and challenge through depth of understanding, not simply moving pupils to the next year’s content.