

Key objectives

Reception

- ◆ Say and use the number names in order in familiar contexts.
- ◆ Count reliably up to 10 everyday objects.
- ◆ Recognise numerals 1 to 9.
- ◆ Use language such as more or less, greater or smaller, heavier or lighter, to compare two numbers or quantities.
- ◆ In practical activities and discussion, begin to use the vocabulary involved in adding and subtracting.
- ◆ Find one more or one less than a number from 1 to 10.
- ◆ Begin to relate addition to combining two groups of objects, and subtraction to 'taking away'.
- ◆ Talk about, recognise and recreate simple patterns.
- ◆ Use language such as circle or bigger to describe the shape and size of solids and flat shapes.
- ◆ Use everyday words to describe position.
- ◆ Use developing mathematical ideas and methods to solve practical problems.

Year 1

- ◆ Count reliably at least 20 objects.
- ◆ Count on and back in ones from any small number, and in tens from and back to zero.
- ◆ Read, write and order numbers from 0 to at least 20; understand and use the vocabulary of comparing and ordering these numbers.
- ◆ Within the range 0 to 30, say the number that is 1 or 10 more or less than any given number.
- ◆ Understand the operation of addition, and of subtraction (as 'take away' or 'difference'), and use the related vocabulary.
- ◆ Know by heart all pairs of numbers with a total of 10.
- ◆ Use mental strategies to solve simple problems using counting, addition, subtraction, doubling and halving, explaining methods and reasoning orally.
- ◆ Compare two lengths, masses or capacities by direct comparison.
- ◆ Suggest suitable standard or uniform non-standard units and measuring equipment to estimate, then measure, a length, mass or capacity.
- ◆ Use everyday language to describe features of familiar 3-D and 2-D shapes.

Year 2

- ◆ Count, read, write and order whole numbers to at least 100; know what each digit represents (including 0 as a place holder).
- ◆ Describe and extend simple number sequences (including odd/even numbers, counting on or back in ones or tens from any two-digit number, and so on).
- ◆ Understand that subtraction is the inverse of addition; state the subtraction corresponding to a given addition and vice versa.
- ◆ Know by heart all addition and subtraction facts for each number to at least 10.
- ◆ Use knowledge that addition can be done in any order to do mental calculations more efficiently.
- ◆ Understand the operation of multiplication as repeated addition or as describing an array.
- ◆ Know and use halving as the inverse of doubling.
- ◆ Know by heart facts for the 2 and 10 multiplication tables.
- ◆ Estimate, measure and compare lengths, masses and capacities, using standard units; suggest suitable units and equipment for such measurements.
- ◆ Read a simple scale to the nearest labelled division, including using a ruler to draw and measure lines to the nearest centimetre.
- ◆ Use the mathematical names for common 2-D and 3-D shapes; sort shapes and describe some of their features.
- ◆ Use mathematical vocabulary to describe position, direction and movement.
- ◆ Choose and use appropriate operations and efficient calculation strategies to solve problems, explaining how the problem was solved.

Year 3

- ◆ Read, write and order whole numbers to at least 1000; know what each digit represents.
- ◆ Count on or back in tens or hundreds from any two- or three-digit number.
- ◆ Recognise unit fractions such as $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{10}$, and use them to find fractions of shapes and numbers.
- ◆ Know by heart all addition and subtraction facts for each number to 20.
- ◆ Add and subtract mentally a 'near multiple of 10' to or from a two-digit number.
- ◆ Know by heart facts for the 2, 5 and 10 multiplication tables.
- ◆ Understand division and recognise that division is the inverse of multiplication.
- ◆ Use units of time and know the relationships between them (second, minute, hour, day, week, month, year).
- ◆ Understand and use £.p notation.
- ◆ Choose and use appropriate operations (including multiplication and division) to solve word problems, explaining methods and reasoning.
- ◆ Identify right angles.
- ◆ Identify lines of symmetry in simple shapes and recognise shapes with no lines of symmetry.
- ◆ Solve a given problem by organising and interpreting numerical data in simple lists, tables and graphs.

Year 4

- ◆ Use symbols correctly, including less than (<), greater than (>), equals (=).
- ◆ Round any positive integer less than 1000 to the nearest 10 or 100.
- ◆ Recognise simple fractions that are several parts of a whole, and mixed numbers; recognise the equivalence of simple fractions.
- ◆ Use known number facts and place value to add or subtract mentally, including any pair of two-digit whole numbers.
- ◆ Carry out column addition and subtraction of two integers less than 1000, and column addition of more than two such integers.
- ◆ Know by heart facts for the 2, 3, 4, 5 and 10 multiplication tables.
- ◆ Derive quickly division facts corresponding to the 2, 3, 4, 5 and 10 multiplication tables.
- ◆ Find remainders after division.
- ◆ Know and use the relationships between familiar units of length, mass and capacity.
- ◆ Classify polygons, using criteria such as number of right angles, whether or not they are regular, symmetry properties.
- ◆ Choose and use appropriate number operations and ways of calculating (mental, mental with jottings, pencil and paper) to solve problems.

Year 5

- ◆ Multiply and divide any positive integer up to 10 000 by 10 or 100 and understand the effect.
- ◆ Order a given set of positive and negative integers.
- ◆ Use decimal notation for tenths and hundredths.
- ◆ Round a number with one or two decimal places to the nearest integer.
- ◆ Relate fractions to division and to their decimal representations.
- ◆ Calculate mentally a difference such as $8006 - 2993$.
- ◆ Carry out column addition and subtraction of positive integers less than 10 000.
- ◆ Know by heart all multiplication facts up to 10×10 .
- ◆ Carry out short multiplication and division of a three-digit by a single-digit integer.
- ◆ Carry out long multiplication of a two-digit by a two-digit integer.
- ◆ Understand area measured in square centimetres (cm^2); understand and use the formula in words 'length \times breadth' for the area of a rectangle.
- ◆ Recognise parallel and perpendicular lines, and properties of rectangles.
- ◆ Use all four operations to solve simple word problems involving numbers and quantities, including time, explaining methods and reasoning.

Year 6

- ◆ Multiply and divide decimals mentally by 10 or 100, and integers by 1000, and explain the effect.
- ◆ Order a mixed set of numbers with up to three decimal places.
- ◆ Reduce a fraction to its simplest form by cancelling common factors.
- ◆ Use a fraction as an operator to find fractions of numbers or quantities (e.g. $\frac{5}{8}$ of 32, $\frac{7}{10}$ of 40, $\frac{9}{100}$ of 400 centimetres).
- ◆ Understand percentage as the number of parts in every 100, and find simple percentages of small whole-number quantities.
- ◆ Solve simple problems involving ratio and proportion.
- ◆ Carry out column addition and subtraction of numbers involving decimals.
- ◆ Derive quickly division facts corresponding to multiplication tables up to 10×10 .
- ◆ Carry out short multiplication and division of numbers involving decimals.
- ◆ Carry out long multiplication of a three-digit by a two-digit integer.
- ◆ Use a protractor to measure acute and obtuse angles to the nearest degree.
- ◆ Calculate the perimeter and area of simple compound shapes that can be split into rectangles.
- ◆ Read and plot co-ordinates in all four quadrants.
- ◆ Identify and use the appropriate operations (including combinations of operations) to solve word problems involving numbers and quantities, and explain methods and reasoning.
- ◆ Solve a problem by extracting and interpreting information presented in tables, graphs and charts.