



Mathematics End of Year Objectives

Reception ELG page [2](#)

Year 1 page [5](#)

Year 2 page [6](#)

Year 3 page [7](#)

Year 4 page [8](#)

Year 5 page [9](#)

Year 6 page [11](#)

Numbers - Age Typical behaviour

Birth to 11 months

- Notices changes in number of objects/images or sounds in group of up to 3.

8 to 20 months

- Develops an awareness of number names through their enjoyment of action rhymes and songs that relate to their experience of numbers.
- Has some understanding that things exist, even when out of sight.

16 to 26 months

- Knows that things exist, even when out of sight.
- Beginning to organise and categorise objects, e.g. putting all the teddy bears together or teddies and cars in separate piles.
- Says some counting words randomly.

22 to 36 months

- Selects a small number of objects from a group when asked, for example, 'please give me one', 'please give me two'.
- Recites some number names in sequence.
- Creates and experiments with symbols and marks representing ideas of number.
- Begins to make comparisons between quantities.
- Uses some language of quantities, such as 'more' and 'a lot'.
- Knows that a group of things changes in quantity when something is added or taken away.

30 to 50 months

- Uses some number names and number language spontaneously.
- Uses some number names accurately in play.
- Recites numbers in order to 10.
- Knows that numbers identify how many objects are in a set.
- Beginning to represent numbers using fingers, marks on paper or pictures.
- Sometimes matches numeral and quantity correctly.
- Shows curiosity about numbers by offering comments or asking questions.
- Compares two groups of objects, saying when they have the same number.
- Shows an interest in number problems.
- Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same.
- Shows an interest in numerals in the environment.
- Shows an interest in representing numbers.
- Realises not only objects, but anything can be counted, including steps, claps or jumps.

40 to 60+ months

- Recognise some numerals of personal significance.
- Recognises numerals 1 to 5.
- Counts up to three or four objects by saying one number name for each item.
- Counts actions or objects which cannot be moved.
- Counts objects to 10, and beginning to count beyond 10.
- Counts out up to six objects from a larger group.
- Selects the correct numeral to represent 1 to 5, then 1 to 10 objects.
- Counts an irregular arrangement of up to ten objects.
- Estimates how many objects they can see and checks by counting them.
- Uses the language of 'more' and 'fewer' to compare two sets of objects.
- Finds the total number of items in two groups by counting all of them.
- Says the number that is one more than a given number.
- Finds one more or one less from a group of up to five objects, then ten objects.
- In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting.
- Records, using marks that they can interpret and explain.
- Begins to identify own mathematical problems based on own interests and fascinations.

Numbers - Early learning goal

Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.

Shape, space and measures - Age Typical behaviour

Birth to 11 months

- Babies' early awareness of shape, space and measure grows from their sensory awareness and opportunities to observe objects and their movements, and to play and explore.

8 to 20 months

- Recognises big things and small things in meaningful contexts.
- Gets to know and enjoy daily routines, such as getting-up time, mealtimes, nappy time, and bedtime.

16 to 26 months

- Attempts, sometimes successfully, to fit shapes into spaces on inset boards or jigsaw puzzles.
- Uses blocks to create their own simple structures and arrangements.

- Enjoys filling and emptying containers.
- Associates a sequence of actions with daily routines.
- Beginning to understand that things might happen 'now'.

22 to 36 months

- Notices simple shapes and patterns in pictures.
- Beginning to categorise objects according to properties such as shape or size.
- Begins to use the language of size.
- Understands some talk about immediate past and future, e.g. 'before', 'later' or 'soon'.
- Anticipates specific time-based events such as mealtimes or home time.

30 to 50 months

- Shows an interest in shape and space by playing with shapes or making arrangements with objects.
- Shows awareness of similarities of shapes in the environment.
- Uses positional language.
- Shows interest in shape by sustained construction activity or by talking about shapes or arrangements.
- Shows interest in shapes in the environment.
- Uses shapes appropriately for tasks.
- Beginning to talk about the shapes of everyday objects, e.g. 'round' and 'tall'.

40 to 60+ months

- Beginning to use mathematical names for 'solid' 3D shapes and 'flat' 2-D shapes, and mathematical terms to describe shapes.
- Selects a particular named shape.
- Can describe their relative position such as 'behind' or 'next to'.
- Orders two or three items by length or height.
- Orders two items by weight or capacity.
- Uses familiar objects and common shapes to create and recreate patterns and build models.
- Uses everyday language related to time.
- Beginning to use everyday language related to money.
- Orders and sequences familiar events.
- Measures short periods of time in simple ways.

Early learning goal – shape, space and measures

Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.

Year 1

- 1 Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
- 2 Count, read and write numbers to 100 in numerals
- 3 Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs
- 4 Given a number, identify one more and one less
- 5 Represent and use number bonds and related subtraction facts within 20
- 6 Add and subtract one-digit and two-digit numbers to 20, including zero
- 7 Recognise, find and name a half as one of two equal parts of an object, shape or quantity
- 8 Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.
- 9 Measure and begin to record length/height, weight/mass, capacity/volume & time
- 10 Recognise and know the value of different denominations of coins and notes
- 11 Sequence events in chronological order using language
- 12 Recognise and use language relating to dates, including days of the week, weeks, months and years
- 13 Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times
- 14 Recognise and name common 2-D shapes (e.g. Square, circle, triangle)
- 15 Recognise and name common 3-D shapes (e.g. Cubes, cuboids, pyramids & spheres)

Year 2

- 1 Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward
- 2 Recognise the place value of each digit in a two-digit number
- 3 Compare and order numbers from 0 up to 100; use and = signs
- 4 Use place value and number facts to solve problems; recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
- 5 Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: $TU+U$, $TU+T$, $TU+TU$ and $U+U+U$
- 6 Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.
- 7 Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
- 8 Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals ($=$) signs
- 9 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
- 10 Write simple fractions for example, $\frac{1}{2}$ of $6 = 3$ and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.
- 11 Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value
- 12 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
- 13 Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.
- 14 Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces
- 15 Interpret and construct simple pictograms, tally charts, block diagrams and simple tables

Year 3

- 1 Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.
- 2 Compare and order numbers up to 1000
- 3 Add and subtract numbers mentally, including: HTU+U, HTU+T and HTU+H
- 4 Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction
- 5 Estimate the answer to a calculation and use inverse operations to check answers
- 6 Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- 7 Count up and down in tenths;
- 8 Recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10
- 9 Compare and order unit fractions, and fractions with the same denominators
- 10 Recognise and show, using diagrams, equivalent fractions with small denominators
- 11 Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators
- 12 Add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$]
- 13 Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) 14 Measure the perimeter of simple 2-D shapes
- 15 Add and subtract amounts of money to give change, using both £ and p in practical contexts
- 16 Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12- hour and 24-hour clocks
- 17 Estimate and read time with increasing accuracy to the nearest minute
- 18 Identify horizontal and vertical lines and pairs of perpendicular and parallel lines
- 19 Identify whether angles are greater or less than a right angle
- 20 Interpret and present data using bar charts, pictograms and tables

Year 4

- 1 Count backwards through zero to include negative numbers
- 2 Recognise the place value of each digit in a four-digit number
- 3 Round any number to the nearest 10, 100 or 1000
- 4 Recall multiplication and division facts for multiplication tables up to 12×12
- 5 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
- 6 Recognise and use factor pairs and commutativity in mental calculations
- 7 Multiply two-digit and three-digit numbers by a one-digit number using formal written layout
- 8 Recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.
- 9 Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$
- 10 Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths
- 11 Round decimals with one decimal place to the nearest whole number
- 12 Compare numbers with the same number of decimal places up to two decimal places
- 13 Convert between different units of measure; estimate, compare and calculate different measures, including money in pounds and pence
- 14 Find the area of rectilinear shapes by counting squares
- 15 Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days
- 16 Compare and classify geometric shapes, including quadrilaterals and triangles, based on properties and sizes
- 17 Complete a simple symmetric figure with respect to a specific line of symmetry.
- 18 Describe positions on a 2-D grid as coordinates in the first quadrant
- 19 Describe movements between positions as translations of a given unit to the left/right and up/down
- 20 Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs

Year 5

- 1 Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero
- 2 Read Roman numerals to 1000 (M) and recognise years written in Roman numerals
- 3 Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)
- 4 Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
- 5 Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers
- 6 Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers
- 7 Establish whether a number up to 100 is prime and recall prime numbers up to 19
- 8 Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000
- 9 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
- 10 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
- 11 Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number
- 12 Compare and order fractions whose denominators are all multiples of the same number
- 13 Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths
- 14 Add and subtract fractions with the same denominator and denominators that are multiples of the same number
- 15 Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams
- 16 Read and write decimal numbers as fractions
- 17 Round decimals with two decimal places to the nearest whole number and to one decimal place
- 18 Read, write, order and compare numbers with up to three decimal places
- 19 Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal
- 20 Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints

21 Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres
22 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

23 Use the properties of rectangles to deduce related facts and find missing lengths and angles

24 Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.

25 Identify 3-D shapes, including cubes and other cuboids, from 2-D representations

26 Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles

27 Draw given angles, and measure them in degrees (°)

28 Identify angles at a point and one whole turn (total 360°); at a point on a straight line and $\frac{1}{2}$ a turn (total 180°)

29 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

30 Complete, read and interpret information in tables, including timetables

Year 6

- 1 Use negative numbers in context, and calculate intervals across zero
- 2 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
- 3 Use their knowledge of the order of operations to carry out calculations involving the four operations
- 4 Use common factors to simplify fractions
- 5 Compare and order fractions, including fractions > 1
- 6 Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
- 7 Multiply simple pairs of proper fractions, writing the answer in its simplest form
- 8 Divide proper fractions by whole numbers
- 9 Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction
- 10 Multiply one-digit number with up to two decimal places by whole numbers
- 11 Use written division methods in cases where the answer has up to two decimal places
- 12 Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison
- 13 Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
- 14 Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts
- 15 Solve problems involving similar shapes where the scale factor is known or can be found
- 16 Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.
- 17 Use simple formulae
- 18 Generate and describe linear number sequences
- 19 Express missing number problems algebraically
- 20 Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places
- 21 Convert between miles and kilometres
- 22 Calculate the area of parallelograms and triangles

23 Calculate, estimate and compare volume of cubes and cuboids using standard units

24 Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius

25 Find unknown angles in any triangles, quadrilaterals, and regular polygons

26 Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles

27 Describe positions on the full coordinate grid (all four quadrants)

28 Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.

29 Interpret and construct pie charts and line graphs

30 Calculate and interpret the mean as an average