



National Curriculum Expectations for EYFS

We have selected the Early Learning Goals that link most closely to the Maths National Curriculum. By the end of reception children will either be on track or not on track. For more detail about the linked subject progression within the [EYFS Framework](#).

- Have a deep understanding of numbers to 10, including the composition of each number.
- Subitise (recognise quantities without counting) up to 5.
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.
- Verbally count beyond 20, recognising the pattern of the counting system.
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.
- Explore and represent patterns within numbers up to 10, including even and odd, double facts and how quantities can be distributed equally.

National Curriculum Expectations for Key Stage 1

Pupils should be taught to:

- Develop confidence and mental fluency with whole numbers, counting and place value, working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools]
- Develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary.
- Develop using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.
- By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value.
- Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

National Curriculum Expectations for Lower Key Stage Two

Pupils should be taught to:

- 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.
- By the end of Year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication tables and show precision and fluency in their work.
- Read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Early Years Objectives

Number

Comparison

- Count objects, actions and sounds.
- Compare numbers.

Counting

- Count beyond ten.

Cardinality

- Subitise.
- Link the number symbol (numeral) with its cardinal number value.

Composition

- Understand the 'one more than/one less than' relationship between consecutive numbers.
- Explore the composition of numbers to 10.
- Automatically recall number bonds for numbers 0-5 and some to 10.

Shape, Space and Measure

Spatial Awareness

- Select, rotate and manipulate 2D and 3D shapes to develop spatial reasoning skills.

Shape

- Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.

Pattern

- Continue, copy and create repeating patterns.

Measure

- Compare length, weight and capacity.

To reach these outcomes the children will:-

- Use number names and symbols when comparing numbers, showing interest in large numbers.
- Estimate a number of things, showing understanding of relative size.
- Enjoy reciting numbers from 0 to 10 (and beyond) and back from 10 to 0.
- Become increasingly confident at putting numerals in order 0 to 10 (ordinality).
- Engage in subitising numbers to six.
- Count out up to 10 objects from a larger group.
- Match the numeral with a group of items to show how many there are (up to 10).
- Show awareness that numbers are made up (composed) of smaller numbers, exploring partitioning in different ways with a wide range of objects.
- Begin to conceptually subitise larger numbers by subitising smaller groups within the number, e.g. sees six raisins on a plate as three and three.
- In practical activities, add one and subtract one with numbers to 10.
- Begin to explore and work out mathematical problems, using signs and strategies of their own choice, including (when appropriate) standard numerals, tallies, "+" or "-".
- Use spatial language, including following and giving directions, using relative terms and describing what they see from different viewpoints.
- Investigate turning and flipping objects in order to make shapes fit and create models; predicting and visualising how they will look (spatial reasoning).
- May enjoy making simple maps of familiar and imaginative environments, with landmarks.
- Use informal language and analogies, (e.g. heart-shaped and hand-shaped leaves), as well as mathematical terms to describe shapes.
- Enjoy composing and decomposing shapes, learning which shapes combine to make other shapes.
- Use own ideas to make models of increasing complexity, selecting blocks needed, solving problems and visualising what they will build.
- Spot patterns in the environment, beginning to identify the pattern "rule"

- Choose familiar objects to create and recreate repeating patterns beyond AB patterns and begins to identify the unit of repeat.
- Enjoy tackling problems involving prediction and discussion of comparisons of length, weight or capacity, paying attention to fairness and accuracy.
- Become familiar with measuring tools in everyday experiences and play.
- Be increasingly able to order and sequence events using everyday language related to time.
- Begin to experience measuring time with timers and calendars.

The following objectives are taken from Sonar Tracker in line with the National Curriculum.

	Year 1	Year 2	Year 3	Year 4
Number and Place Value	<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 and read numbers to 100 in numerals -Count in multiples of twos, fives and tens from 0 -Identify one more and one less of a given number -Identify and represent numbers using objects and pictorial representations including the number line and use the language of: equal to, more than, less than (fewer), most, least -Read and write numbers from 1 to 20 in numerals -Read and write numbers from 1 to 20 in words -Count in twos, fives and tens to solve problems -Partition and combine numbers using apparatus if required 	<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 -Recognise the place value of each digit in a two-digit number, forward and backward -Recognise the place value of each digit in a two-digit number -Identify, represent and estimate numbers using different representations, including the number line -Compare and order numbers from 0 up to 100; use <, > and = signs -Read and write numbers to at least 100 in numerals -Read and write numbers to at least 100 in words -Use place value and number facts to solve problems -Partition two-digit numbers into different combinations of tens and ones using apparatus if needed -Use reasoning about numbers and relationships to solve more complex problems and explain his/her thinking -Recall the multiples of 10 below and above any given 2 digit number 	<ul style="list-style-type: none"> -Count from 0 in multiples of 4, 6, 8, 50 and 100; find 10 or 100 more or less than a given number -Recognise the place value of each digit in a three-digit number -Compare and order numbers up to 1000 -Identify, represent and estimate numbers using different representations -Read and write numbers up to 1000 in numerals -Read and write numbers up to 1000 in words -Solve number problems and practical problems involving these ideas 	<ul style="list-style-type: none"> -Count in multiples of 7, 9, 25 and 1000 -Find 1000 more or less than a given number -Count backwards through zero to include negative numbers -Recognise the place value of each digit in a four digit number -Order and compare numbers beyond 1000 -Identify, represent and estimate numbers using different representations including measures -Round any number to the nearest 10, 100 or 1000 -Solve number and practical problems that involve all of the above and with increasingly large positive numbers -Read Roman numerals to 100 and know that over time, the numeral system changed to include the concept of zero and place value

Addition and Subtraction

- Read and interpret mathematical statements involving addition, subtraction and equals signs
- Write mathematical statements involving addition, subtraction and equal signs
- Demonstrate an understanding of the commutative law
- Demonstrate an understanding of inverse relationships involving addition and subtraction
- Recall at least four of the six number bonds for 10 and reason associated facts
- Represent and use number bonds within 20
- Represent and use subtraction facts within 20
- Add one-digit and two-digit numbers to 20, including zero
- Subtract one-digit and two-digit numbers to 20, including zero
- Solve one-step problems that involve addition, subtraction and missing numbers using concrete objects and pictorial representations

- Solve problems with addition and subtraction using concrete objects and pictorial representations, including those involving numbers, quantities and measures
- Solve problems with addition and subtraction applying increasing knowledge of written methods where regrouping may be required
- Recall all number bonds to and within 10 and use these to reason with and calculate bonds to and within 20, recognising other relationships
- Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
- Add and subtract numbers where no regrouping is required, using concrete objects, pictorial representations and mentally, including a two-digit numbers and ones
- Add and subtract numbers using concrete objects, pictorial representations and mentally, including two two-digit
- Add and subtract numbers using concrete objects, pictorial representations and mentally, including adding three one digit numbers
- Show that addition of two numbers can be done in any order 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
- Recall doubles and halves to 20
- Use estimation to check that his/her answers to calculations are reasonable
- Solve missing number problems using addition and subtraction

- Add and subtract numbers mentally, including a three-digit number and ones
- Add numbers with up to three digits using the formal method of columnar addition
- Add and subtract numbers mentally, including a three-digit number and tens
- Subtract numbers with up to three digits using the formal methods of columnar subtraction
- Add and subtract numbers mentally, including a three-digit number and hundreds
- Estimate the answer to a calculation and use inverse operations to check answers
- Solve problems, including missing number problems using number facts, place value and more complex addition and subtraction

- Add numbers with up to four digits using the formal methods of columnar addition
- Estimate and use inverse operations to check answers to a calculation
- Subtract numbers with up to four digits using the formal method of columnar subtraction
- Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why

**Multiplicati
on
and
Division**

-Solve one-step problems involving multiplication by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher
- Solve one-step problems involving division by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher

-Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
-Calculate mathematical statements for multiplication and division within multiplication tables and write them using the multiplication, division and equals signs
-Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot
-Solve problems involving multiplication and division, using concrete materials and mental methods
-Solve problems involving multiplication and division, using arrays, repeated addition and multiplication and division facts, including problems in context
-Use multiplication and division facts for 2, 5 and 10 to make deductions outside known multiplication facts
-Solve word problems involving multiplication and division with more than one step
-Recognise the relationships between addition and subtraction and rewrite addition statements as simplified multiplication statements

-Recall and use multiplication and division facts for the 3, 4, 6 and 8 multiplication tables
-Write and calculate mathematical statements for multiplication and division using the multiplication tables that he/she knows, including for two-digit numbers times one-digit numbers using mental and progressing to formal written methods
-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

-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
-Multiply two-digit and three-digit numbers by a one-digit number using formal written layout
-Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects

Fractions

-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

-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 and demonstrate understanding that all parts must be equal parts of the whole
-Write simple fractions for example $\frac{1}{2}$ of $6 = 3$ and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$

-Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers of 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
-Recognise and show, using diagrams, equivalent fractions with small denominators
-Add fractions with the same denominator within one whole
-Subtract fractions with the same denominator within one whole
-Compare and order unit fractions, and fractions with the same denominators
-Solve fraction problems
-Record tenths as decimals

-Recognise and show, using diagrams, families of common equivalent fractions
-Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten
-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
-Add and subtract fractions with the same denominator
-Recognise and write decimal equivalents of any number of tenths or hundredths
-Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$
-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
-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
-Solve simple measure and money problems involving fractions and decimals to two decimal places

<p>Properties of Shape</p>	<ul style="list-style-type: none"> -Recognise and name common 2-D shapes -Recognise and name common 3-D shapes 	<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 and describe the properties of 3-D shapes, including the number of edges, vertices and faces -Name some common 2-D and 3-D shapes from a group of shapes or from pictures of the shapes and describe some of their properties -Identify 2-D shapes on the surface of 3-D shapes -Compare and sort common 2-D and 3-D shapes and everyday objects describing similarities and differences 	<ul style="list-style-type: none"> -Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them -Recognise angles as a property of shape or a description of a turn -Identify right angles and identify whether other angles are greater or less than a right angle -Recognise that two right angles make a half turn, three make three quarters of a turn and four a complete turn -Identify horizontal and vertical lines and pairs of perpendicular and parallel lines 	<ul style="list-style-type: none"> -Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes -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 -Begin to recognise where angles are greater than two right angles. Know the term straight angle referring to two right angles together
<p>Position and Direction</p>	<ul style="list-style-type: none"> -Describe position, direction and movement, including whole, half, quarter and three-quarter turns 	<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) 		<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>Measurement</p>	<ul style="list-style-type: none"> -Compare, describe and solve practical problems for lengths and heights -Compare, describe and solve practical problems for mass/weight -Compare, describe and solve practical problems for time -Measure and begin to record mass/weight -Measure and begin to record capacity and volume -Measure and begin to record time -Recognise and know the value of different denominations of coins and notes -Sequence events in chronological order using language -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 -Measure and begin to record length/height 	<ul style="list-style-type: none"> -Choose and use appropriate standard units to estimate and measure length/height in any direction -Compare and order lengths, mass, volume/capacity and record the results using $<$, $>$ and $=$ -Recognise and use symbols for pounds and pence; 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 -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 -Remember the number of minutes in an hour and the number of hours in a day -Read scales in divisions of ones, twos, fives and tens -Read scales where not all numbers on the scale are given and estimate points in between -Read the time on a clock to the nearest 15 minutes 	<ul style="list-style-type: none"> -Measure, compare, add and subtract lengths, mass and volume/capacity -Measure the perimeter of simple 2-D shapes -Add and subtract amounts of money to give change, using both £ and p in practical contexts -Tell 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 e.g. to calculate the time taken by particular events or tasks 	<ul style="list-style-type: none"> -Convert different units of measure -Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres -Find the area of rectilinear shapes by counting squares -Estimate, compare and calculate different measures, including money in pounds and pence -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
<p>Statistics</p>		<ul style="list-style-type: none"> -Interpret and construct simple pictograms, tally charts, block diagrams and simple tables -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"> -Interpret and present data using bar charts, pictograms and tables -Solve one-step and two-step questions using information presented in scaled bar charts and 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 -Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

