# schoolbadgescan

# Key Learning in Maths in EYFS *Creating Confident, Capable Mathematicians in a Caring Community*

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| **3 and 4 Year Olds** | **Reception** | **Number - Early Learning Goal (ELG)** |
| * Develop fast recognition of up to 3 objects, without having to count them individually (‘subitising’). * 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 principle’). * Show ‘finger numbers’ up to 5. * Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. * Experiment with their own symbols and marks as well as numerals. * Solve real world mathematical problems with numbers up to 5.  Compare quantities using language: ‘more than’, ‘fewer than’. * 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’. * 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’. * Make comparisons between objects relating to size, length, weight and capacity. * 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. * Talk about and identifies 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. * Begin to describe a sequence of events, real or fictional, using words such as ‘first’, ‘then...’ | * Count objects, actions and sounds. * Subitise. * Link the number symbol (numeral) with its cardinal number value. * Count beyond ten. * Compare numbers. * 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. * 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. * Continue, copy and create repeating patterns. * Compare length, weight and capacity. | * Have a deep understanding of number 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 |
| **Numerical Patterns - Early Learning Goal (ELG)** |
| * 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 evens and odds, double facts and how quantities can be distributed equally |

# schoolbadgescanKey Learning in Maths in Year 1 *Creating Confident, Capable Mathematicians in a Caring Community*

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| **Number and Place Value** | **Addition and Subtraction** | | **Multiplication and Division** |
| * Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. * Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens. * Given a number, identify one more and one less. * Use the language of: equal to, more than, less than (fewer), most, least. * Identify and represent numbers using objects and pictorial representations including the number line. * Read and write numbers from 1 to 20 in numerals and words. * Begin to recognise the place value of numbers beyond 20 (tens and ones) | * Represent and use number bonds and related subtraction facts within 20. * Add and subtract one-digit and two-digit numbers to 20, including zero. * Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs. * Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = - 9 | | * Count in multiples of twos, fives and tens. * Recall and use doubles of all numbers to 10 and corresponding halves. * 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. * 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. |
| **Shape** | **Position and Direction** | | **Statistics** |
| * recognise and name common 2-D and 3-D shapes, including: * 2-D shapes [e.g. rectangles (including squares), circles and triangles] * 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres]. * Sort objects, numbers and shapes to a given criterion and their own | * describe position, direction and movement, including half, quarter and three-quarter turns. * Recognise and create repeating patterns with objects and shapes. | | * Present and interpret data in block diagrams using practical equipment. * Ask and answer simple questions by counting the number of objects in each category. * Ask and answer questions by comparing categorical data. |
| **Measurement** |  | **Fractions** |  |
| * compare, describe and solve practical problems for: * lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half] * mass/weight [e.g. heavy/light, heavier than, lighter than] * capacity and volume [e.g. full/empty, more than, less than, half, half full, quarter] * time [e.g. quicker, slower, earlier, later] * measure and begin to record the following: * lengths and heights * mass/weight * capacity and volume * time (hours, minutes, seconds * sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] * tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. * recognise and use language relating to dates, including days of the week, weeks, months and years. * recognise and know the value of different denominations of coins and notes. | | * 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. | |

# schoolbadgescanKey Learning in Maths in Year 2 *Creating Confident, Capable Mathematicians in a Caring Community*

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| **Number and Place Value** | **Addition and Subtraction** | | **Multiplication and Division** |
| * Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward. * Find 1 or 10 more or less than a given number. * Compare and order numbers from 0 up to 100; use <, > and = signs. * Identify, represent and estimate numbers using different representations, including the number line. * Read and write numbers to at least 100 in numerals and in words. * Recognise the place value of each digit in a two-digit number (tens, ones). | * Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. * Add and subtract numbers using concrete objects, pictorial representations, and mentally, including:   a two-digit number and ones  a two-digit number and tens  two two-digit numbers   * Adding three one-digit numbers * Show that 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. * Solve problems with addition and subtraction: * Using concrete objects and pictorial representations, including those involving numbers, quantities and measures.  applying their increasing knowledge of mental and written methods. | | * Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward. * 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 another cannot. * Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. |
| **Shape** | **Position and Direction** | | **Statistics** |
| * 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. * 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 and 3-D shapes and everyday objects | * 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). * Order and arrange combinations of mathematical objects in patterns and sequences | | * 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 |
| **Measurement** | | **Fractions** | |
| * Compare and order lengths, mass, volume/capacity and record the results using >, < and = * Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels. * 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. * 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. | | * Recognise, find, name and write fractions 1/3, ¼, 2/4 and ¾ of a length, shape, set of objects or quantity. * Write simple fractions e.g. ½ of 6 = 3 and recognise the equivalence of 2/4 and ½. | |

# schoolbadgescanKey Learning in Maths in Year 3 *Creating Confident, Capable Mathematicians in a Caring Community*

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| **Number and Place Value** | **Addition and Subtraction** | | **Multiplication and Division** |
| * Count from 0 in multiples of 4, 8, 50 and 100. * Find 10 or 100 more or less than a given number * identify, represent and estimate numbers using different representations * Read and write numbers up to 1000 in numerals and words * Recognise the place value of each digit in a three-digit number (hundreds, tens and ones) * Compare and order numbers up to 1000 * Solve number problems and practical problems involving these ideas | * Estimate the answer to a calculation and use inverse operations to check answers * Add and subtract numbers mentally including: a 3-digit number and ones a 3-digit number and 10s, a three-digit number and hundreds. * Add and subtract numbers with up to three digits using formal written methods of columnar addition and subtraction * Solve problems, including missing number problems, using number facts, place value and more complex addition and subtraction | | * Recall and use multiplication and division facts for the three four and eight multiplication tables * Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, 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 |
| **Shape/Angles and Lines** | **Position and Direction** | | **Statistics** |
| * Draw 2D shapes * Make 3D shapes using modelling materials recognise 3D shapes in different orientations and describe them * Recognise angles as a property of shape or a description of a turn * Identify right angles recognise that two right angles make half a turn three make 3/4 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 |  | | * Interpret and present data using bar charts, pictograms and tables * Solve one step and two step questions (for example How many more? and How many fewer?) using information presented in scaled bar chart and pictograms and tables |
| **Measurement** | | **Fractions** | |
| * Measure, compare, add and subtract lengths (m/cm/mm); mass (kg, g); volume/capacity (l/ml) * Add and subtract amount of money to give change using both pounds and pence in practical context * Tell and write the time from an analogue clock including using Roman numerals from I too 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, am/pm, 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 a particular event or task * Measure the perimeter of simple 2D shapes | | * Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers in 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 * Recognise and show using diagrams, equivalent fractions with small denominators * Compare and order unit fractions, and fractions with the same denominators * add and subtract fractions with the same denominator within one whole for example 5/7 +1/7 = 6/7 * Solve problems that involve all of the above | |

# schoolbadgescanKey Learning in Maths in Year 4 *Creating Confident, Capabale Mathematicians in a Caring Community*

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| **Number and Place Value** | **Addition and Subtraction** | | **Multiplication and Division** |
| * Count in multiples of 6, 7, 9, 25 and 1000. * Count backwards through zero to include negative numbers * 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 * Find 1000 more or less than a given number. * Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens and ones) * Compare and order numbers beyond 1000 * 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 | * Estimate and use inverse operations to check answers to a calculation. * Add and subtract numbers with up to four digits using formal written methods of columnar addition and subtraction where appropriate. * Solve addition and subtraction two step problems in contexts, deciding which operations and methods to use and why. | | * 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 3 numbers * Recognise and use factor pairs and commutativity 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 2-digit numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects |
| **Shape, Angles and Lines** | **Position and Direction** | | **Statistics** |
| * compare and classify geometric shapes including quadrilaterals and triangles based on their properties and size * identify lines of symmetry in 2D shapes presented on different orientations * identify acute and obtuse angles and compare and order angles up to two right angles by size * identify lines of symmetry in 2D shapes represented in different orientations * complete a simple symmetrical figure with respect to a specific line of symmetry | * Describe positions on a 2D 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 give to complete a given Polygon | | * 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 |
| **Measurement** | | **Fractions and Decimals** | |
| * convert between different units of measure * estimate compare and calculate different measures * 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 * measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres * find the area of rectilinear shapes by counting squares | | * count up and down in hundredths; recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10 * recognise and show using diagrams, families of common equivalent fractions * solve problems involving increasingly hard fractions to calculate quantities, and fractions to divide quantities, including non unit fractions where the answer is a whole number * recognise and write decimal equivalents of any number of tenths or hundredths * recognise and write decimal equivalent to 1/4 ½, ¾ * 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 * find the effect of dividing a one or two-digit number by 10 and 100 identifying the value of the digits in the answers as ones, tenths and hundredths * solve simple measure and money problems involving fractions and decimals to two decimal places | |

# schoolbadgescanKey Learning in Maths in Year 5 *Creating Confident, Capable Mathematicians in a Caring Community*

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| **Number and Place Value** | **Addition and Subtraction** | | **Multiplication and Division** |
| * Count forwards or 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 * 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. * (Read, Write), order and compare numbers to at least 1,000,000 and determine the value of each digit. * 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 problems and practical problems that involve all of the above | * Use rounding to check answers to calculations and determine in the context of a problem levels of accuracy * 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 * Solve addition and subtraction multi step problems in 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 equals sign | | * Identify multiples and factors including finding all factor pairs of a number and common factors of 2 numbers * Know and use 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 the notation for squared and cubed. * Multiply numbers up to four 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 four digits by a one-digit number using 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 * 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 fraction and problems involving simple rates * Solve problems involving addition subtraction multiplication and division and a combination of these, including understanding the meaning of the equals sign |
| **Shape, Angles and Lines** | **Position and Direction** | | **Statistics** |
| * Distinguish between regular and irregular polygons based on reasoning about equal sides and angles * Use the properties of rectangles to juice related facts and find missing lengths and angles * Identify 3D shapes including cubes and other cuboids from 2D representations * Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles * Draw given angles, and measure them in degrees * identify: angles at a point and one whole turn, angles at a point on a straight line and half a turn * Other multiples of 90 degrees | * Identify describe an represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed | | * Complete read and interpret information in tables including timetables * Solve comparison, sum and difference problems using information presented in a line graph |
| **Measurement** | | **Fractions, Decimals and Percentages** | |
| * Convert between different units of metric measure * Understand and use approximate equivalence is between metric units and common imperial units such as inches pounds and pints * Use all four operations to solve problems involving measure using decimal notation including scaling * Use all four operations to solve problems involving measure for example money * Solve problems involving converting between units of time * 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 and estimate the area of irregular shapes * Estimate volume for example using one centimetre cubed blocks to build cuboids including cubes and capacity for example using water | | * Identify name and write equivalent fractions of a given 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 mixed number for example * Compare and order fractions whose denominators are all multiples of the same number * Read and write decimal numbers as fractions for example 0.71 = 71/100 * Recognise and use thousandths and relate them to tenths hundredths and decimal equivalents * 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 * Solve problems involving number up to three decimal places * Recognise the percent symbol and understand that percent relates to number of parts per hundred and write percentages as a fraction with the denominator 100 and as a decimal * Solve problems which require knowing percentage and decimal equivalents of ½, 1/4, 1/5, 2/5, 4/5 and those fractions with the nominator of a multiple of 10 or 25 | |

# schoolbadgescanKey Learning in Maths in Year 6 *Creating Confident, Capabale Mathematicians in a Caring Community*

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| **Number and Place Value** | **Addition and Subtraction** | | **Multiplication and Division** |
| * Read, write (order and compare) numbers to at least 10,000,000 and determine the value of each digit. * (Read, Write), order and compare numbers to at least 10,000,000 and determine the value of each digit. * Round any whole number to a requires degree of accuracy. * Use negative numbers in context, and calculate intervals across zero. * Solve number problems that involve all of the above. | * 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. * Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why | | * Identify common factors, common multiples and prime numbers * Use estimation to check to answers to calculations and determine, in the context of a problem. an appropriate degree of accuracy. * Multiply multi digit numbers up to four digits by a two-digit whole number using the formal written method of long multiplication * Divide numbers up to four 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 * Solve problems involving addition subtraction multiplication and division * Use their knowledge of the order of operations to carry out calculations involving the four operations |
| **Shape, Angles and Lines** | **Position and Direction** | | **Statistics** |
| * Draw 2D 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 and diameter and circumference and know that the diameter is twice the radius * Recognise describe and build simple 3D shapes including making nets * Find unknown angles in any triangles, quadrilaterals and regular polygons * Recognise angles where they meet at a point, on a straight line or are vertically opposite and find missing angles | * Describe positions on the full coordinate grid all 4 quadrants * Draw and translate simple shapes on the coordinate plane, and reflect them in the axes | | * Interpret and construct pie charts and line graphs and use these to solve problems * Calculate and interpret the mean as an average |
| **Measurement** | | **Fractions, Decimals and Percentages** | |
| * Solve problems involving the calculation and conversion of units of measure using decimal notation up to three decimal places where appropriate * 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 notations up to three decimal places * Convert between miles and kilometres * 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 * Recognise that shapes with the same area 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 and cubic metres and extending to other units | | * Use common factors to simplify fractions; use common multiples to express fractions in the same denomination * Compare and under order fractions, including fractions>1 * Identify the value of each digit in numbers given to three decimal places * Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places * Multiply 1-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 specific degrees of accuracy * Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction * Recall and use equivalence is between simple fractions decimals and percentages including in different contexts | |
| **Algebra** | | **Ratio and Proportion** | |
| * Use simple formula * 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 | | * 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 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 | |