Greenholm Primary School Programme of Study for Numeracy

	By the end of **YR** children should be able to…	By the end of of **year 1** children should be able to…	Children working at a **mastery level in year 1** should…
Number and Place Value	▪ Say and use number names in order in familiar contexts ▪ Know that numbers identify how many objects are in a set ▪ Count reliably up t o 10 everyday objects ▪ Estimate how many objects they can see and check by counting Count aloud in ones, twos, fives and tens ▪ Use language such as 'more' or 'less' to compare two numbers Use ordinal numbers in different contexts ▪ Recognise numerals 1 to 9	▪ 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 ▪ identify and represent numbers using objects and pictorial representations including numberlines, and use the language of: equal to, more than, less than (fewer), most, least ▪ read and write numbers from 1 to 20 in numerals and words. ▪ recognise and create repeating patterns with objects and ▪ practise counting (1, 2, 3…), ordering (first, second, third…), and to indicate a quantity (3 apples, 2 centimetres), including solving simple concrete problems, until fluent ▪ begin to recognise place value in numbers beyond 20 by reading, writing, counting and comparing numbers up to 100, supported by objects and pictorial representations ▪ practise counting as reciting numbers and counting as enumerating objects, and counting in twos, fives and tens from different multiples including varied and frequent practice through increasingly complex questions. use the terms **odd** and **even**	▪ 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 (tens, ones) ▪ identify, represent and estimate numbers using different representation 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 and in words ▪ Practise counting, reading, writing and comparing numbers to at least 100 ▪ Count in multiples of three to support later understanding of a third. ▪ represent larger numbers in different ways, including spatial representations ▪ partition numbers in to T (Eg. 23= 20 + 3 and 23= 10 + 13) ▪ Solve problems that emphasise the value of each digit in two-digit numbers. begin to understand zero as a place holder.

Addition and subtraction	▪ Observe number relationships and patterns in the environment and use these to derive facts ▪ Find one more or one less than a number from 1 to 10 ▪ Select two groups of objects to make a given total of objects ▪ Begin to relate addition to combining two groups of objects and subtraction to 'taking away' In practical activities and discussion ▪ begin t o use the vocabulary involved in adding and subtracting ▪ Count repeated groups of the same size	▪ read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs ▪ represent and use number bonds and related subtraction facts within 20 ▪ add and subtract one-digit and two-digit numbers to 20, including zero ▪ solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9. ▪ memorise and reason with number bonds to 10 and 20 in several forms (for example, 9 + 7 = 16; 16 – 7 = 9; 7 = 16 – 9). ▪ realise the effect of adding or subtracting zero to establish addition and subtraction as related operations. ▪ combine and increase numbers, counting forwards and backwards. discuss and solve problems in familiar practical contexts, including using quantities and include the terms: **put together, add, altogether, total, take away, distance between, difference between, more than and less than**, to develop the concept of addition and subtraction and use these operations flexibly.	▪ 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 representation and mentally, including: ➢ a two-digit number and ones; ➢ a two-digit number and tens; ➢ two two-digit numbers; ➢ adding three one-digit numbers ▪ solve problems with addition and subtraction using concrete objects and pictorial representation including those involving numbers, quantities and measures ▪ 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 . ▪ use the language of addition and subtraction to include **sum** and **difference**. ▪ practise addition and subtraction to 20 to become increasingly fluent in deriving facts such as using 3 + 7 = 10; 10 – 7 = 3 and 7 = 10 – 3 to calculate 30 + 70 = 100; 100 – 70 = 30 and 70 = 100 – 30. ▪ check calculations, including by adding to check subtraction and adding numbers in a different order to check addition (for example, 5 + 2 + 1 = 1 + 5 + 2 = 1 + 2 + 5) to establish commutativity and associativity of addition.
Multiplica ti	▪ Count repeated groups of the same size ▪ Share objects into equal groups and count how many there are in each group	▪ solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with support ▪ begin to understand:	▪ recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers

		➢ multiplication and division through grouping and sharing small quantities; ➢ doubling numbers and quantities; ➢ finding simple fractions of objects, numbers and quantities. ▪ make connections between arrays, number patterns, and counting in twos, fives and tens.	▪ calculate mathematical statements for multiplication and division within the 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 materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. ▪ use a variety of language to describe multiplication and division. ▪ begin to become familiar with multiplication tables and practise to become fluent in the 2, 5 and 10 x tables and connect them to each other. ▪ connect the 10 x table to place value, and the 5 x table to the divisions on the clock face. ▪ work with a range of materials and contexts in which multiplication and division relate to grouping and sharing discrete and continuous quantities, to arrays and to repeated addition.

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 and find half of a length, quantity, set of objects or shape. ▪ connect halves and quarters to the equal sharing and grouping of sets of objects and to measures, as well as recognising and combining halves and quarters as parts of a whole.	▪ recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ of a length, shape, set of objects or quantity ▪ write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$ ▪ use fractions as 'fractions of' discrete and continuous quantities by solving problems using shapes, objects and quantities. ▪ connect unit fractions to equal sharing and grouping, to numbers when they can be calculated, and to measures, finding fractions of lengths, quantities, sets of objects or shapes, $\frac{3}{4}$ as the first example of a non-unit fraction.
Measurements	▪ Use language such as 'greater', 'smaller', 'heavier' or 'lighter' to compare quantities ▪ Use everyday language related to time; order and sequence familiar events and measure short periods of time	▪ compare, describe and solve practical problems for: ➢ lengths and heights [Eg. long/short, longer/shorter, tall/short, double/half]; ➢ mass/weight [Eg. heavy/light, heavier than, lighter than]; ➢ capacity and volume [Eg. full/empty, more than, less than, half, half full, quarter]; ➢ time [Eg. quicker, slower, earlier, later] ▪ measure and begin to record: ➢ lengths and heights ➢ mass/weight ➢ capacity and volume ➢ time (hours, minutes, seconds) ▪ recognise and know the value of different denominations of coins and notes	▪ 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 order lengths, mass, volume/capacity and record the results using >, < and = ▪ 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 ▪ compare and sequence intervals of time

		▪ sequence events in chronological order using language [for example, **before, after, next, first, today, yesterday, tomorrow, morning, afternoon, evening**] ▪ recognise and use language relating to dates: **days of the week, weeks, months, years** ▪ tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. ▪ move from using and comparing different types of quantities and measures using non-standard units, including discrete (Eg. counting) and continuous (Eg. liquid) measurement, to using manageable common standard units (cm, m, l, kg). ▪ begin to use measuring tools such as a ruler, weighing scales and containers. ▪ use the language of time, including telling the time throughout the day, first using o'clock and then half past.	▪ 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. ▪ use standard units of measurement with increasing accuracy, using knowledge of the number system. ▪ use the appropriate language and record using standard abbreviations (l, ml, m, cm, kg, g, km). ▪ compare measures includes simple multiples such as 'half as high'; 'twice as wide'. ▪ become fluent in counting and recognising all coins ▪ read and say amounts of money confidently and use the symbols £ and p accurately, recording pounds and pence separately.
Geometry properties of Shapes	▪ Use familiar objects and common shapes to create and recreate patterns and build models ▪ Use language such as 'circle' or 'bigger' to describe the shape and size of solids and flat shapes	▪ recognise and name common 2-D and 3-D shapes, including: ➢ 2-D shapes [rectangle, square, circle triangle] ➢ 3-D shapes [cuboid, cube, pyramid sphere]. ▪ handle common 2-D and 3-D shapes, naming these and related everyday objects fluently. ▪ recognise common 2-D and 3-D shapes in different orientations and sizes, and know that rectangles, triangles, cuboids and pyramids are not always similar to each other.	▪ handle and name a wide variety of common 2-D and 3-D shapes , and identify the properties of each shape ▪ 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 ▪ compare and sort common 2-D and 3-D shapes and everyday objects ▪ draw lines and shapes using a straight edge ▪ read and write names for shapes that are appropriate for their word reading and spelling

Geometry Position and Direction	▪ Use everyday words to describe position	▪ describe position, direction and movement, including whole, half, quarter and three-quarter turns. ▪ use the terms: **left, right, top, middle and bottom, on top of, in front of, above, between, around, near, close,far, up, down, forwards backwards, inside, outside.** ▪ make whole, half, quarter and three-quarter turns in both directions and connect turning clockwise with movement on a clock face.	▪ 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 ➢distinguishing between rotation as a turn ➢right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise). ▪ work with patterns of shapes, including those in different orientations. ▪

		▪ 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	▪ 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 ▪ record, interpret, collate, organise and compare information (for example, using many-to-one correspondence in pictograms with simple ratios 2, 5, 10)
Data Handling	▪ Sort familiar objects to identify their similarities and differences ▪ Count how many objects share a particular property, ▪ presenting results using pictures, drawings or numerals	▪ ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity ▪ Answer a question by recording information in lists and tables;present outcomes using practical resources, pictures, block graphs or pictograms ▪ Use diagrams to sort objects into groups according to a given criterion; suggest a different criterion for grouping the same objects	▪ interpret and construct simple pictograms, tally charts, block diagrams and simple tables ▪ ask and answer questions about totalling and comparing categorical data ▪ record, interpret, collate, organise and compare information (for example, using many-to-one correspondence in pictograms with simple ratios 2, 5, 10)

Key performance indicators are in BOLD.