Bullion Lane Primary School
Progression of Learning Objectives

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Number: Place Value *Counting matches tables to be taught as well as WRM							
• Say one number for each item in order: 1,2,3,4,5. • Show 'finger numbers' up to 5. • Experiment with their own symbols and marks as well as numerals. • Fast recognition of up to 3 objects, without having to count them individually ('subitising'). • Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle'). • Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. • Recite numbers past 5.	• Represent, count and subitise numbers to 5: - one, two three; - four; five (including forming the numeral). • Numbers to 10: counting to 6, 7, 8; counting 9 and 10; • comparing groups up to 10 . • Numbers to 20: counting to 20. • Comparing groups: - comparing quantities of identical objects; • comparing quantities of non-identical objects.	• Count to 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 and tens; • identify and represent numbers using objects and pictorial representations; • read and write numbers from 1 to 20 in numerals and words. • Given a number, identify one more and one less	• Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward; • 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); • compare and order numbers from 0 up to 100; use <, > and = signs.	• Count from 0 in multiples of 6, 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 in words; • recognise the place value of each digit in a three-digit number (hundreds, tens, ones;) • compare and order numbers up to 1000	• Count in multiples of 7, 9, 11, 12, 25 and 1000; • identify, represent and estimate numbers using different representations; • read, and write numbers up to 10,000 in numerals and words; 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 five-digit number (tens of thousands, thousands, hundreds, tens, and ones); • order and compare numbers beyond 1000; • 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; • Understand and begin to use flexible partitioning.	• Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000; • understand Roman numerals to 1,000; • 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; • 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.	• read, write, order and compare numbers up to 10 000 000 and determine the value of each digit; • round any whole number to a required degree of accuracy use negative numbers in context, and calculate intervals across zero; • solve number and practical problems that involve all of the above.

Bullion Lane Primary School
Progression of Learning Objectives

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Number: Addition and Subtraction							
• Solve real world mathematical problems with numbers up to 5. • Compare quantities using language: 'more than', 'fewer than'.	• Sorting: - sorting into groups • Change within 5: - one more; one less • Used vocabulary more - fewer • Numbers to 5: • number bonds to 5 • Addition to 10: combining two groups to find the whole; • number bonds to 10 – ten frame; • number bonds to 10 – part whole model • Count on and back: - adding by counting on; • taking away by counting back. • Engage in extended problem solving to develop critical thinking skills.	• 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.	• recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 ; • 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; • add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones, a two-digit number and tens, 2 two-digit numbers adding 3 one-digit numbers; • 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.	• estimate the answer to a calculation and use inverse operations to check answers; • add and subtract numbers mentally, including: a three-digit number and ones, a three-digit number and tens, 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.	• estimate and use inverse operations to check answers to a calculation; • add and subtract numbers with up to 4 digits using the 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.	• use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy; • add and subtract whole numbers with 5 digits, including using formal written methods (columnar addition and subtraction); • add and subtract numbers mentally with increasingly large numbers; • solve addition and subtraction multistep problems in contexts, deciding which operations and methods to use and why.	• 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 multistep problems in context, deciding which operations and methods to use and why.

Bullion Lane Primary School
Progression of Learning Objectives

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Number: Multiplication and Division							
• Solve real world mathematical problems with numbers up to 5.	• Numerical patterns: - doubling; - halving and sharing; - odds and evens; • recognise and make equal groups; • arrange small quantities into pairs and notice that some will have one left over; • build doubles 'twice as many' using real objects and mathematical equipment. • Engage in extended problem solving to develop critical thinking skills.	• 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.	• recall and use multiplication and division facts for the 2, 5, 10 and 3 times 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 • calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs • solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	• recall and use multiplication and division facts for the 4, 6 and 8 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.	• recall multiplication and division facts for multiplication tables up to 12 × 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; • solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit.	• identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers ; • know and use the vocabulary of prime numbers, prime factors and composite (nonprime) 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, and the notation for squared (2) and cubed (3) • 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; • multiply and divide numbers mentally drawing upon known facts • 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; • multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 • solve problems involving multiplication and division including their knowledge of factors and multiples, squares and cubes; • solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equal sign.	• identify common factors, common multiples and prime numbers; • use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy; • multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication; • 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; • divide numbers up to 4 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

Bullion Lane Primary School
Progression of Learning Objectives

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fractions, decimals and percentages							
		• recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity • recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity.	• recognise equal and unequal parts; • find, name and write fractions $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$ and of a length, shape, set of objects or quantity • Recognise the $\frac{1}{2}$, $\frac{2}{4}$ equivalence of ,and write simple fractions for example, 3 is half of 6; solve missing number problems; • Recognise unit and non-unit fractions	• recognise, find and write fractions of a discrete set of objects: • 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 $\frac{5}{7}+\frac{1}{7}=\frac{6}{7}$ • solve problems that involve all of the above; solve missing number problems.	• count up and down in tenths and hundredths; recognise that tenths and hundredths arise when dividing an object by 10 or 100 (and dividing tenths by 10); • recognise and show, using diagrams, families of common equivalent fractions; • add and subtract fractions with the same denominator; • solve problems involving increasingly harder fractions; • recognise and write decimal equivalents of any number of tenths or hundreds; • recognise and write decimal equivalents to ½. ¼. ¾; • convert mixed numbers to improper fractions and vice versa; • round decimals with 1 decimal place to the nearest whole number; • compare numbers with the same number of decimal places up to 2 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 answer as ones, tenths and hundredths; • solve simple measure and money problems involving fractions and decimals to 2 decimal places.	• 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; • add and subtract fractions with the same denominator, and denominators that are multiples of the same number; • multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams; • compare and order fractions whose denominators are all multiples of the same number; • read and write decimal numbers as fractions for example, 0.71 = $\frac{71}{100}$; • recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents; • round decimals with 2 decimal places to the nearest whole number and to 1 decimal place; • read, write, order and compare numbers with up to 3 decimal places solve problems involving number up to 3 decimal places; • recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per 100', and write percentages as a fraction with denominator 100, and as a decimal fraction; • solve problems which require knowing percentage and decimal equivalents and those fractions with a denominator of a multiple of 10 or 25; • solve simple measure and money problems involving numbers to two decimal places.	• use common factors to simplify fractions; use common multiples to express fractions in the same denominator; • add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions; • multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. ¼ x ½ = 1/8) • divide proper fractions by whole numbers (for example, 1/3 ÷2 = 1/6) • identify the value of each digit in numbers given to 3 decimal places; • multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places; • multiply one-digit numbers with up to 2 decimal places by whole numbers; • use written division methods in places where the answer has up to 2 decimal places; • solve problems which require answers to be rounded to specified degrees of accuracy; • associate a fraction with division and calculate decimal fraction equivalents; • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts; • solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison; • solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.

Bullion Lane Primary School
Progression of Learning Objectives

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Measurement							
• make comparisons between objects relating to size, length, weight and capacity. • Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'	• measure: - length, height and distance; - weight; capacity • Compare items saying which is the heaviest and which is the lightest. • Use more mathematical vocabulary relating to length (longer, shorter), height (taller, shorter) and breadth (wider, narrower). • Measure time in simple ways. • Make comparisons and build upon understanding of full and empty to show full, nearly full and nearly empty. • Time: my day • Order key events in the daily routine.	• compare, describe and solve practical problems for: lengths and heights [for example, long/short, tall/short, double/half; mass/weight[for example, heavy/light, heavier than, lighter than]; capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]; • measure and begin to record the following: lengths and heights (cm); mass/weight capacity and volume; time (hours, minutes, seconds); • recognise and know the value of different denominations of coins and notes; • sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]; • 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.	• 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, heights, 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; • 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 the four operations with lengths and height, volume and capacity.	• measure, compare, add and subtract: lengths (m/cm / mm); mass (kg/g); volume /capacity (l/ml); • add and subtract amounts of money to give change, using both £ and p in practical contexts; • tell and write the time from an analogue and digital clock, including Roman numerals from I to XII, and 12-hour clock ; • estimate and read time with increasing accuracy to the nearest minute 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 particular events or tasks].	• convert between different units of measure [for example, kilometre to metre; hour to minute; pounds to pence]; • 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	• convert between different units of metric measure [for example, km and m; cm and m; cm and mm; g and kg; l and ml; • understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints; • use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation; • 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 cm and m; • calculate and compare the area of rectangles (including squares), including using standard units, square centimetres (cm^2) and square metres (m^2), and estimate the area of irregular shapes; • estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water].	• solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate; • 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 3 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 areas 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 (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3]; use and convert imperial units of measure.

Bullion Lane Primary School
Progression of Learning Objectives

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Geometry – Properties of Shapes							
• 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'; • combine shapes to make new ones – an arch, a bigger triangle etc. Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc; describe a familiar route. • Discuss routes and locations, using words like 'in front of' and 'behind'. • Understand position through words alone. • 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.	• Shape and space: - Spatial awareness; - 3-D shapes; 2-D shapes; • making simple patterns; • exploring more complex Patterns; • recognise and name 2-D shapes • Name 3D shapes. • Explore similarities and differences between 3D shapes. • Sort 3-D shapes accordingly. • Construct own 3D shapes in different ways. • Develop understanding of positional language. • Use positional language to describe where objects are in relation to one another. • Select and rotate shapes to fill a given space. • Copy, continue and create a widening range of repeating patterns and symmetrical constructions.	• Recognise, name and sort common 2-D shapes [for example, rectangles (including squares, circles and triangles); recognise and name common 3-D shapes [for example, cuboids (including cubes, pyramids and spheres); describe position, direction and movement, including whole, half, quarter and three-quarter turns. NON-STATUTORY: • Use and understand ordinal numbers 1st, 2nd, 3rd.	• identify and describe the properties of 2-D shapes, including the number of sides, and line of symmetry in a vertical line; • identify 2-D shapes on the surface of 3-D shapes, [e.g., a circle on a cylinder and a triangle on a pyramid]; • compare and sort common 2-D shapes and everyday objects • identify and describe the properties of 3-D shapes, including number of edges, vertices and faces; • compare and sort common 3-D shapes and everyday objects; • 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 anticlockwise).	• draw 2-D shapes; 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, recognise that 2 right angles make a half-turn, 3 make three quarters of a turn and 4 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.	• compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes; • identify lines of symmetry in 2-D shapes presented in different orientations; • identify acute and obtuse angles and compare and order angles up to 2 right angles by size; • complete a simple symmetric figure with respect to a specific line of symmetry; • 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.	• 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 1 whole turn (total 360°) • angles at a point on a straight lie and half a turn (total 180°) • other multiples of 90° • 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; • read and plot co-ordinates.	• illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius; • recognise, describe and build simple 3-D shapes, including making nets; • find unknown angles in any triangles, quadrilaterals, and regular polygons; • recognise angles where they meet at a point, are 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; • understanding nets of 3d shapes.

Bullion Lane Primary School
Progression of Learning Objectives

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Statistics							
			• interpret and construct simple pictograms, tally charts, block diagrams and 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 totaling and comparing categorical data.	• 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 charts and pictograms and tables.	• 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	• complete, read and interpret information in tables, including timetables • solve comparison, sum and difference problems using information presented in a line graph and be able to draw them.	• interpret and construct pie charts and line graphs and use these to solve problems; • calculate and interpret the mean as an average.