Hulland C of E Primary School

Progression in Mathematics

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Times Tables	I can count in 2's, 5's and 10's from zero	I can count in 3's from zero. I can recall & use multiplication facts for 2, 5 and 10 times tables. I can recall and use division facts for 2, 5 and 10 times tables.	I can recall and use the multiplication facts for 3 and 4 times tables. I can recall and use multiplication and division facts for 3 and 4 times tables. I can recall and use multiplication facts for 8 times tables recognising its relationship to the 4 times table.	I can recall and use multiplication and division facts for the 6 and 9 times tables recognising their relationship to the 3 times table I can recall and use the multiplication and division facts for the 7 times tables I can recall and use the multiplication and division facts for all tables up to 12 x 12	I can recall quickly all the multiplication and division facts for tables up to 12 x 12 and can use them confidently in larger calculations	

YEAR: 1 2 3 4 5 6	Children working below	Children exceeding

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Addition	I can add in ones using practical resources I can add in ones using a structured number line I can add in tens and ones using a structured number line I know my number facts to 20	I can add in tens and ones using an unstructured number line. I can partition a number to add using number bonds to 10 e.g. 8 + 7 = 8 + 5 + 2 I can add 10 or 100 to any number and can add in multiples of 10 I can partition 2 and 3 digit numbers and add vertically using base 10 or practical resources without crossing boundaries	I can add 2 digit numbers and 3 digit numbers using expanded column addition (written strategy 2) I can estimate the answer to an addition calculation or use the inverse to check it is correct. I can add 2 digit numbers and 3 digit numbers using column addition I can add using both £ and p in practical contexts	I can add money with decimal places using expanded column addition I can use inverse operations to check calculations I can add 3 and 4 digit numbers using formal column addition I can add money with decimal places using formal column addition	I can add large numbers in different contexts using formal column addition I can use rounding to estimate and check answers to calculations I can add a mix of whole numbers and decimals with different numbers of decimal places using column addition	

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Subtraction	I can subtract in ones using practical resources I can subtract in ones using a structured number line I can subtract in tens and ones using a structured number line I can subtract in tens and ones using an unstructured number line I know all the subtraction facts to 20	I can subtract more efficiently using a number line or jumps of multiples of 10 with numbers up to 3 digits I can use related facts to subtract multiples of 10 and 100 e.g. 6-4=2 60-40=20	I can partition a number and subtract using column subtraction without decomposing (2 and 3 digit numbers) I can estimate the answer to a subtraction calculation or use the inverse to check it is correct I can subtract 2 and 3 digit numbers using column subtraction without decomposing I can subtract money using £ and p to give change in practical contexts		I can subtract large numbers using formal column subtraction I can use rounding to check answers to calculations I can subtract a mix of whole numbers and decimals with different numbers of decimal places using column subtraction	

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Multiplication	I can multiply using concrete objects, pictorial representations and arrays with the support of the teacher	I can multiply using concrete objects, pictorial representations, arrays and repeated addition I know that multiplication can be done in any order (commutative)	I can explore the effect of partitioning a number to multiply (distributive law) e.g. exploring 7x8 by splitting 7 into 5 and 2 then calculating 2x8 and 5x8 I can use related facts to multiply multiples of 10 e.g. 2x3=6 2x30=60 I can partition a number into10's and ones to multiply (distributive law)	I can use related facts to multiply multiples of 10 and 100 e.g. 2x3=6, 2x30=60, 2x300=600 I can use an expanded vertical method to multiply TU and HTU by U I can use an expanded vertical method to multiply money with 2 decimal places by U (a one digit number) I can use a formal vertical method to multiply TU and HTU by U I can multiply 3 numbers, combining them in different ways and using my knowledge of number facts to make this easier e.g. 2x6x5 = 10x6 derived from (2x5)x6	I can use a formal vertical method to multiply HTU, THHTU and whole numbers with up to 2 decimal places (e.g. money) by U I can use related facts to multiply multiples of 10 and 100 e.g. 2x3=6, 20x30=600 I can multiply TU XTU using diagrams, arrays and grids I can multiply TU X TU using an expanded written strategy I can multiply TU X TU using long multiplication	I can multiply numbers with up to 2 decimal places by a whole number I can use related facts to multiply multiples of 10 and 100 e.g. 2x3=6 200x30=6000 I can use long multiplication to multiply THTU or HTU X TU

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Division	I can divide using concrete objects, pictorial representations and arrays with the support of the teacher	I can divide using concrete objects, pictorial representations and arrays and repeated subtraction I know that division of one number by another can not be done in any order.	I can divide 2 digit numbers by another number using the tables I know	I can understand the effect of dividing by 1 I can divide 2 digit numbers by increasingly efficient written methods and use related multiplication facts I can divide 3 digit numbers using increasingly efficient written methods and using related multiplication facts	I can divide 4 digit and 3 digit numbers by 1digit using short division I can solve more complex problems involving division including with remainders and round the answer appropriately in context I can begin to represent a remainder as a decimal or fraction	I can divide numbers up to 4 digits by a 2 digit whole number using expanded long division I can express a quotient as a fraction, decimal or round according to context I can divide numbers up to 4 digits by a 2 digit whole number using long division

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Fractions	I can recognise, find and name a half of an object, shape or quantity I can recognise, find and name a quarter of an object, shape or quantity	I can recognise, find, name and write fractions 1/3, 1/4, 2/4, 3/4 of a length, shape, set of objects or quantity I can recognise the equivalence of 2/4 to ½ I can count in halves and quarters up to 10 recognising that fractions are numbers between whole numbers	I can recognise fractions of shapes (unit and non-unit) I can work out fractions of amounts for common fractions e.g. 1/2, 1/4 , 3/4, 1/5 of a set of objects I can compare and order fractions with the same denominator I can add and subtract fractions with the same denominator and recognise a whole as a fraction e.g. 2/5 + 1/5 = 3/5 I can compare and order unit fractions with the support of fraction boards and number lines I can recognise and show using diagrams, simple equivalent fractions	I can add and subtract fractions where the denominator is the same beyond a whole I can recognise and show equivalent fractions in a family of fractions I can recognise and work out unit fractions of shapes, lengths and sets of objects e.g. 1/8 of a bar of chocolate made of 40 pieces I can recognise and work out non-unit fractions of shapes, lengths and sets of objects e.g. 3/4 of a metre, or 2/5 of a bar of chocolate made of 20 pieces	I can recognise and convert improper fractions to mixed numbers I can add and subtract fractions with the same denominators including recognising and converting improper fractions to mixed numbers I can compare and order fractions where denominators are in the same fraction family I can add and subtract fractions with denominators in the same fraction family I can multiply proper fractions and mixed numbers by a whole number using diagrams and concrete apparatus	I can simplify fractions using common factors I can use common multiples to express fractions in the same denomination I can compare and order any set of fractions, proper or improper, or mixed numbers, including those with different denominations I can add and subtract fractions and mixed numbers with different denominations using the idea of equivalence I can multiply simple pairs of proper fractions and write the answer in its simplest form e.g. 1/4 x ½ = 1/8 I can divide proper fractions by a whole number e.g. 1/3 ÷ 2=1/6 *I can recognise and explore the relationship between multiplying by a whole number and dividing by a reciprocal* *I can multiply more complex pairs of proper fractions e.g. 3/5 x 4/7*

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Decimals			I can count in tenths and understand a tenth is as part of a whole divided into 10 equal parts I can recognise and write the decimal equivalent of a tenth using a place value board e.g. 1/10 = 0.1	I can count in tenths and decimal tenths recognising them as numbers between whole numbers I can round a decimal with one decimal place to a whole number I can recognise a hundredth as a whole divided into 100 equal parts and as parts of a tenth I can write the decimal equivalent of tenths and hundredths and recognise them in the context of money I can recognise and write the decimal equivalent of tenths, hundredths and common fractions (1/4, 1/2, 3/4) I can find the effect of dividing one and two digit numbers by 10 and 100 and identify the value of the digits in the answer as units, tenths and hundredths I can compare and order decimals with the same number of decimal places up to 2 decimal places	I can compare and order whole numbers and decimals with up to 2 decimal places I can round decimals with 2 decimal places to the nearest whole number and one decimal place I can recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents I can read, write, order and compare numbers that have a mixture of 1,2 or 3 decimal places	I can multiply and divide by 10, 100 and 1000 giving answers up to 3 decimal places I can associate a fraction with division and calculate decimal equivalents of common fractions such as halves, quarters and fifths I can calculate more complex decimal equivalents such as 3/8 = 0.375 using my understanding of the equivalence between fractions and decimals I can round answers with specific degree of accuracy (where this has been specified) *I can recognise what degree of accuracy is appropriate when rounding decimals* *When using a calculator to solve problems, I can round the answer appropriately in context*
YEAR: 1 2 3 4 5 6			Children working below		Children exceeding	

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Percentage and ratio					I can recognise and understand % as a part of 100 and write a % as a fraction and a decimal	I can recall and use equivalence between fractions, decimals and % to solve problems e.g. 10% of £5.00 or 50% of the team I can solve % problems in a variety of contexts such as comparing % (e.g. best buys) I can solve problems involving similar shapes where the scale factor is known or can be found I can identify that a problem can be written as a ratio and solve problems using this relationship I can divide a quantity in a given ratio (recognising the proportion as a fraction of the whole) *I can solve more complex % problems in context such as % deduction* *I can link % to calculating simple angles in a pie chart (e.g. recognise that 50% is 180 degrees)* *I can solve more complex problems using a unitary method (i.e. scaling down to 1 and then up again)*

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Problem Solving	I can solve addition and subtraction 1 step word problems using concrete apparatus I can solve multiplication and division 1 step word problems using concrete apparatus (2,5 and 10 x tables only) I can solve practical problems in the context of measure e.g. length, weight, capacity and time	I can solve missing number problems for addition and subtraction with numbers up to 20 I can solve simple word problems involving addition and subtraction with numbers up to 50 I can solve multiplication and division problems using pictures and diagrams I can use place value and number facts to solve problems I can solve simple money problems involving addition and finding change (£ or pence)	I can solve money problems involving addition and finding the change (both £ and pence) I can solve missing number problems for addition, subtraction, multiplication and division with numbers up to 100 using my knowledge of number facts and the relationship between operations I can solve 1 step word problems involving addition and subtraction (including numbers beyond 100) I can solve 1 step word problems involving multiplication and division I can solve simple correspondence problems (e.g. 'share 4 cakes equally between 8 children' or '4 hats, 3 coats, how many different outfits?' I can estimate an answer to an addition or subtraction problem and use the inverse to check an answer I can solve simple scaling problems (e.g. twice as long)	I can solve missing number problems with increasingly large numbers using my knowledge of place value and relationship between operations I can estimate answers and use inverse operations to check answers to a calculation in the context of a problem I can solve 2 step word problems involving addition and subtraction deciding which operations to use and when I can solve 2 step word problems involving all 4 operations, deciding which operations to use and when I can solve more complex scaling problems (e.g. 8 times as high) I can solve more complex correspondence problems, choosing how to tackle and present the problem clearly (e.g. 'share 3 cakes equally between 10 children' or '3 starters, 3 mains, 3 desserts how many meal options?'	I can use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy I can solve addition and subtraction multi-step problems in context, deciding which operations to use and why I can solve division problems interpreting remainders in context and adjusting the answer appropriately I can solve problems involving multiplication and division including scaling by simple fractions I can solve multi step problems involving a combination of any of the 4 operations I can use all 4 operations to solve equivalence statements (e.g. 5x? = 18 + 12) I can investigate a problem involving place value and properties of number, and present my investigation in a clear organised way.	I can solve addition and subtraction multi-step problems in context, with increasingly large numbers, deciding which operations to use and why I consistently check the reasonableness of my answer in all calculations I can round and estimate as a means of predicting and checking the order of magnitude of my answers to a decimal calculation I can solve multi-step word problems and investigations involving all 4 operations from a large range of contexts I can express missing number problems algebraically I can find pairs of numbers that satisfy an equation with two unknowns I can solve a variety of number problems using formulae and algebraic equations *I can solve real life and financial problems e.g. comparing holiday packages or working out household bills*

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Properties of numbers			I can recognise patterns in some multiplication tables (2,5,10,4 and 8)	I can recognise factor pairs of a number and multiples of single digit numbers I can recognise patterns across all the multiplication tables I can use the = sign to write equality statements for addition, subtraction and multiplication	I can identify multiples and factors including finding all factor pairs of a number and common factors of two numbers I know and use the vocabulary of prime numbers, prime factor and composite (non-prime) numbers I can work out if a number up to 100 is a prime number and have quick recall of all the prime numbers up to 19 I can recognise and describe linear number sequences including those involving fractions and decimals and find the term to term rule e.g. add half I can recognise squared and cubed numbers and use the correct notation	I can identify common factors, common multiples and prime numbers, with increasingly large numbers I can explore the order of operations using brackets I can generate and describe linear number sequences I can make generalisations about number patterns and express them algebraically *I can identify square roots and cube roots which give integer solutions (whole number answers)* *I can identify the region for solutions of square roots (not square numbers) and use this as a starting point for trial and improvement*

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Measures	I can compare, describe, measure and record length and height I can compare, describe, measure and record capacity and volume I can compare, describe, measure and record weight and mass I recognise and know the value of different denominations of coins and notes	I can measure using appropriate equipment e.g. ruler, weighing scales, measuring jug I can choose appropriate units of measure to estimate length, height, mass and capacity I can recognise and use symbols of £ and p I can combine amounts to make a particular value e.g. make 3p using 2p and 1p I can find different combinations of coins that equal the same amounts I can compare and order measures and record using < > and =	I can read measuring instruments with increasing accuracy I can compare, add and subtract measures I can add and subtract amounts of money to give change, using both £ and p in practical contexts I can solve problems involving measure including simple problems of scale e.g. twice as high I can read measures in mixed units and can convert simple whole units of measure e.g. 5m=500cm	I can recognise £ and p in context and recognise equivalence e.g. 306p = £3.06 I can convert between units of measure with the support of measuring instruments and where appropriate record with decimal notation I can convert between units of measure using multiplication and division and where appropriate record with decimal notation I can estimate, compare and calculate measures in a variety of contexts	I can convert between different units of measure using my understanding of x and ÷ by 10, 100 and 1000 I can use all 4 operations to solve problems involving length, mass, capacity and scaling I can estimate volume and capacity and explore these concepts using practical materials I can understand and use approximate equivalences between metric units and common imperial units (inches, pounds, pints)	I can use, read, write and convert between standard units of measure using decimal notation up to 3 decimal places I can solve problems involving the calculation and conversion of units of measure using decimal notation up to 3 decimal places I can calculate, estimate and compare volume of cubes and cuboids using standard units e.g. cm3 I can recognise when it is possible to use formulae to calculate volume I can convert between miles and km *I can understand compound units for speed and use them in context e.g. science experiments*

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Time	I can sequence events in chronological order using before, after, today, tomorrow etc I can recognise and use language relating to dates including days of the week, months and the term 'year.' I can compare, describe, measure and record time (hours, minutes, seconds) and use the language quicker, slower, earlier, later I can write the time on an analogue clock for o'clock and half past	I know how many hours there are in a day and how many minutes in an hour I can compare and sequence intervals of time I can read and write the time of an analogue clock for quarter past and quarter to I can tell and write the time to 5 minutes and draw the hands on a clock face to show these times	I can use the vocabulary of time and know the number of seconds in a minute, days in each month, year and leap year I understand and use vocabulary such as o'clock, am, pm, noon and midnight I can record time in seconds, minutes and hours and can compare lengths of time (e.g. which is longer) I can read and write the time to the nearest minute of an analogue clock I can calculate and compare time durations I can read the time on a digital clock (12 hour) and compare to an analogue clock I can read the time on a 24 hour digital clock	I can read, write and convert time between analogue and digital 12 and 24 hour clocks I can solve problems calculating lengths of time I can convert hours to minutes, minutes to seconds, years to months or weeks to days	I can solve problems which involve converting between units of time e.g. expressing the answer as days and weeks I can solve problems involving time including reading simple timetables	

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Perimeter and area			I can measure the perimeter of simple 2D shapes	I can calculate the perimeter of rectangles including squares I can find the area of rectangles by counting squares I can calculate the area of rectangles using multiplication	I can measure and calculate the perimeter of shapes that need to be divided into rectangles (composite rectilinear shapes) in cm and m I can measure and calculate the area of shapes that need to be divided into rectangles (composite rectilinear shapes) in cm2 and m2 I can estimate the area of irregular shapes I can calculate and compare the area of rectangles using cm2 and m2 including from scale drawings I can find unknown lengths on rectilinear shapes using my understanding of perimeter and area	I can investigate relationships between area and perimeter e.g. shapes with the same area can have different perimeters and vice versa I can calculate the area of parallelograms and triangles I can recognise when it is possible to use formulae to calculate area *I can calculate area and perimeter of compound shapes including parallelograms and triangles*

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Statistics		I can answer simple questions about quantities from looking at tally charts and simple tables I can answer simple questions about quantities from looking at pictograms and block charts (scale of 1 or 2) I can interpret and construct simple tally charts and tables I can interpret and construct simple pictograms and block diagrams I can answer questions by comparing information in simple bar charts e.g. Which has the most? How much altogether?	I can interpret data in charts and graphs including reading a scale of 2,5, and 10 I can present data in charts and graphs including a scale of 2,5 and 10 I can solve one step problems using the information presented in charts and graphs I can solve 2 step problems using the information presented in charts and graphs e.g. how many more/fewer?	I can interpret data presented in a range of graphical representations with a greater range of scales I can present discrete data using appropriate graphical methods I can interpret continuous data in the form of time (line) graphs recognising that it is recording a change over time I can present continuous data in the form of time (line) graphs recognising that it is recording a change over time I can solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	I can solve comparison, sum and difference problems using information presented in line graphs I can complete, read and interpret information presented in tables and other graphical representations I can decide which representations of data are most appropriate and explain why	I can interpret a pie chart I can construct a pie chart I can solve problems using the data from line graphs (including conversion graphs) and pie charts including ones I have constructed myself I can calculate the mean as an average and understand when it is appropriate to find the mean of a set of data *I can read and interpret linear proportional graphs (e.g. speed)*

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Shape	I can recognise and name common 2D shapes (rectangle, circle, square, triangle) I can recognise and name common 3D shapes (cuboid, cube, pyramid, sphere)	I can identify, describe and sort 2D shapes by naming them, talking about the number of sides and showing a vertical line of symmetry I can identify, describe and sort 3D shapes by talking about the number of faces, edges and vertices I can identify 2D shapes on the surface of 3D shapes e.g. circle on a cylinder I can compare and sort common 2D and 3D shapes in everyday objects	I can identify horizontal and vertical lines and pairs of perpendicular and parallel lines I can identify right angles and describe how right angles can make up 1/4, 1/2 , 3/4 and a whole turn I can recognise right angles in 2D shapes and say if an angle is greater or less than a right angle I can draw 2D shapes and describe them using my knowledge of sides and angles I can make 3D shapes using modelling materials and name and describe their properties I can recognise s 3D shape in different orientations	I can compare and order angles I can identify and name acute and obtuse angles I can name, describe and sort a variety of quadrilaterals and triangles based on their properties I can complete symmetrical shapes and patterns with respect to a specific line of symmetry I can identify lines of symmetry in 2D shapes presented in different orientations	I can identify and compare acute, obtuse and reflex angles I can draw and measure given angles in degrees I can identify regular and irregular shapes using my knowledge of length of sides and angles I can identify 3D shapes from 2D representations I can calculate missing angles on a straight line (180) or at a point (360) or within a right angle (90) I can find missing lengths and angles in rectangles using my knowledge of related facts	I can accurately draw 2D shapes using given angles and dimensions I can recognise, describe and build simple 3D shapes including making nets I can compare and classify geometric shapes based on their size and properties and can find unknown angles in any triangle, quadrilateral or regular polygon I can illustrate and name parts of a circle including radius, diameter and circumference and know that diameter is twice the radius I can recognise vertically opposite angles and use this to calculate missing angles *I can solve problems using my knowledge of circle properties*

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Position and direction	I can describe position, direction and movement including whole, 1/2, 1/4, and 3/4	I can order and arrange combinations of mathematical objects in patterns and sequences I can use mathematical vocabulary to describe position, direction and movement including movement in a straight line I can distinguish between rotation as a turn and in terms of right angles for quarter, half and three quarter turns		I can describe positions on a 2D grid I can use co-ordinates to plot a shape on a grid (1st quarter) I can complete polygons by giving a missing co-ordinate on a grid I can translate shapes on a grid and describe the movement using left/right, up/down	I can identify, describe and draw the position of a shape on a grid after a reflection on a line parallel to the axis I can identify, describe and draw the position of a shape on a grid after a translation	I can label the axis of a grid in all 4 quadrants and describe a position on the grid I can draw and translate simple shapes on a 4 quadrant grid I can reflect simple shapes in the axes I can predict missing co-ordinates using the properties of shapes *I can express missing co-ordinates algebraically*

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Place Value	I can read and write numbers from 1 to 20 in numerals and words I can read and write numbers from 1 to 100 in numerals I can identify one more/ one less from a given number I can identify odd and even numbers up to 20 I can continue simple number sequences and shape patterns	I can understand the value of each digit in a 2 digit number I can compare and order numbers from 0 up to 100 using > < and = signs I can count in tens from any number including crossing boundaries into hundreds	I can understand the value of each digit in a 3 digit number I can read and write numbers up to 1000 in numerals and words I can compare and order numbers up to 1000 I can count in tens and hundreds and can add or subtract 10 or 100 from any given number up to 1000	I can understand the value of each digit in a 4 digit number I can represent numbers in different ways e.g. words, numerals, base 10 etc I can compare and order numbers beyond 1000 I can say 1000 more or less than any given number I can round any whole number to the nearest 10, 100 or 1000 I can count backwards through zero to include negative numbers	I can read write order and compare numbers to 1 000 000 (1 million) and determine the value of each digit I can round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000 I can count forwards and backwards in steps of 10 for any given number up to 1,000,000 I can interpret negative numbers in context	I can read, write order and compare numbers up to 10,000,000 and determine the value of each digit I can round any whole number to a required degree of accuracy I can use negative numbers in context and calculate intervals across zero

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