Kingsland CE Primary School Progression of KIRFs and Place Value

Y	Counting and Place Value	Multiplication Tables	Number Bonds	Doubling and Halving	Addition and Subtraction	Measures
	Counting is essential in developing a deep understanding of the number system, number line and place value of numbers. *Children need lots of practice at crossing boundaries, understanding the value of each digit in the place value columns.* *Children should become fluent in counting from any given number, in steps of any size.* *Children should be as fluent counting backwards as they are counting forwards.* *Counting links into understanding about number sequences.* *Children should become proficient in visualising a number line when counting.*	*Having a good knowledge and understanding of multiplication tables will allow the children easier access to written methods, multiplication, division, fractions, decimals, percentages, ratio and proportion* *There are different stages to learning multiplication tables:* • *Counting up* • *Counting back* • *Chanting* • *Recalling multiplication facts* • *Recalling division facts* • *Recalling x10 greater and x10 smaller facts* • *Recalling x100 greater and x100 smaller facts* • *Extending into negative numbers* • *Recalling related fraction facts* • *Writing number sentences in different ways* • *Understanding balancing number sentences*	*A good understanding of number bonds will allow the children to use this knowledge when solving problems.* *Children who are unable to rely on these key facts will ultimately be doing harder maths.* *Using number bonds in context is essential:* • *Money* • *Measures* *Links should be made to how basic number bonds to 10 can be used with other number bonds.* *Children should have a deep understanding of the power of the = sign, having experience of number sentences being written in many different ways, particularly with balancing calculations e.g.* • *6 + 4 = 10* • *10 = 6 + 4* • *10 – 6 = 4* • *4 = 10 – 6* • *4 + 6 = 7 + 3* *Links should be made to addition and subtraction facts within number bonds.*	*It is essential that children understand the opposite relationship of doubling and halving.* *Children should become proficient in partitioning, and partitioning in different ways, in order to double and halve successfully e.g.* • *75 = 70 + 5* • *75 = 60 + 15* *Children should develop a deep understanding of how simple doubling and halving can be used to double and halve larger numbers, comprehending the links and relationships e.g.* • *Double 6 = 12* • *Double 60 = 120*	*Children should become flexible when adding and subtracting mentally, using a range of different strategies:* • *Counting on* • *Counting back* • *Visualising a number line* • *Use of fingers and other representations* • *Partitioning* • *Finding and using number bonds to aid easier calculations* *Children should have a deep understanding of:* • the = sign in balancing equations • the < and > signs • missing number calculations *… and should regularly use and recognise these types of number sentences.*	*In order for the children to be able to apply knowledge and understanding of different measures, they need to rapidly recall key measures facts.*
R	Count the numbers in order to 5 Count back from 5 to 0 in order Count the numbers in order to 10 Count back from 10 to 0 in order Count the numbers in order to 20 Count back from 20 to 0 in order Read numbers to 10 Write numbers to 10 Count numbers to 10 Order numbers to 10 Read numbers to 20 Write numbers to 20 Count numbers to 20 Order numbers to 20	Count in 10s Count in 2s	Partition numbers to 5 into two groups		Use physical representations to add and subtract	Know the days of the week in order
1	Count forwards and backwards in steps of 10 Count forwards and backwards in steps of 2 Count forwards and backwards in steps of 5 Count to and across 100, forwards and backwards, from any given number Understand equal, more than, less than Given a number, identify one more and one less	x10	Know all number bonds to 5 Find patterns in number bonds to 5 Know all number bonds to 10 Find patterns in number bonds to 10 Know all addition facts for all numbers between 0 and 10 Know all subtraction facts for all numbers between 0 and 10 Understand missing number calculations	Know all doubles to 10 Know all halves to 10	Add a one digit number to a two digit number Subtract a one digit number from a two digit number Add numbers to 10 Subtract numbers to 10 Add a multiple of 10 to a two digit number (using a 100 square and flip flap) Subtract a multiple of 10 from a two digit number (using a 100 square and flip flap) Solve missing number calculations Understand the effect of adding and subtracting 0	Know the seasons in order Know the months of the year in order
2	Count in 10s from any given number, forwards and backwards Count in 2s from any given number, forwards and backwards, crossing boundaries Count in steps of 2, 3 and 5 from 0, forwards and backwards Understand the value of T & U	x2 x5 Children recognise odd and even numbers	Know all number bonds to 20 Find patterns in number bonds to 20 Link number bonds to 20 to number bonds to 10 Understand the = sign in balancing equations Use and understand < and > signs Understand missing number calculations	Know the doubles of all numbers to 20 Know the halves of all numbers to 20	Add multiples of 10 including crossing significant boundaries Subtract multiples of 10 including crossing significant boundaries Know all addition facts for multiples of 10 to 100 Know all subtraction facts for multiples of 10 to 100	Know how many p in a £ Know the number of minutes in an hour Know the number of hours in a day

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3	Count from 0 in multiples of 100 & 50 Count from 0 in multiples of 4 & 8 Count in 5s from any given number, forwards and backwards, crossing boundaries Count in 4s from any given number, forwards and backwards, crossing boundaries Count in 3s from any given number, forwards and backwards, crossing boundaries Find 10 or 100 more / less than a given number Understand the value of H, T & U	x4 x3 x8 x50 x100 Children recognise that multiples of even times tables are all even	Understand the = sign in balancing equations Use and understand < and > signs Understand missing number calculations Know all number bonds to 100 Visualise number bonds to 100 on a number line Find patterns within number bonds to 100	Know doubles of all whole numbers to 20 Know halves of all whole numbers to 20 Know doubles of all multiples of 10 to 500 Know halves of all multiples of 10 to 500 Know doubles of all multiples of 100 to 5000 Know halves of all multiples of 100 to 5000	Know all addition and subtraction facts for multiples of 100 to 1000 Know all addition and subtraction facts for multiples of 5 with a total of 100 Know all addition and subtraction facts for number pairs that total 100 Add and subtract mentally: • A three digit number and ones • A three digit number and tens • A three digit number and hundreds	Know the number of seconds in a minute Know the number of days in each month, year and leap year Understand am and pm; noon and midnight Recognise right angles
4	Count from 0 in multiples of 25 and 1000 Count from 0 in multiples of 6, 9, 7, 11 and 12 Understand the value of Th,H,T&U Find 1000 more / less than a given number Count backwards through 0 to include negative numbers	x6 x9 x7 x11 x12 x25 x1000 All multiplication tables up to 12 x12 should be known by the end of Y4 Children recognise that multiples of even times tables are all even	Understand the = sign in balancing equations Use and understand < and > signs Understand missing number calculations Recognise and use factor pairs and commutativity in mental calculations Know all pairs of multiples of 50 with a total of 1000	Know doubles and halves of all whole numbers to 50 Know doubles and halves of all multiples of 5 to 1000 Know doubles and halves of all multiples of 50 to 5000	Add and subtract pairs of two digit numbers Add and subtract 9/19/29 etc. to two digit numbers Add and subtract 11/21/31 etc. to two digit numbers	Read Roman Numerals to 100 Know the number of weeks in a year Know: • m in km • cm in m • 90˚ in a right angle
5	Count forwards and backwards from any given number, in any steps, crossing boundaries and into negative numbers Count forwards and backwards in steps of powers of 10 for any given number up to 1 000 000 Count forwards and backwards through 0 with positive and negative numbers Understand the value of HTh,TTh,Th,H,T&U	Continue to rehearse all multiplication tables up to 12 x 12 Know and apply the tests of divisibility: x2 x3 x5 x9 x10 Recall prime numbers up to 19 Recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})	Understand the = sign in balancing equations Use and understand < and > signs Understand missing number calculations Know all addition and subtraction facts for decimals that total 1 (one DP) Find patterns within number bonds to 1 Know all addition and subtraction facts for decimals that total 10 (one DP) Find patterns within number bonds to 10 Find all the factor pairs of a number	Know doubles and halves of all whole numbers to 100 Know doubles and halves of all multiples of 10 to 1000 Know doubles and halves of all multiples of 100 to 10,000 Know the doubles and halves of all two-digit numbers	Add and subtract numbers mentally with increasingly large numbers	Read Roman Numerals to 1000 Know: • mm in cm • ml in a l • g in a kg • angles of a triangle • angles at a point
6	Count forwards and backwards from any given number, in any steps, crossing boundaries and into negative numbers Know the decimal and percentage equivalents of the fractions ½, ¼, ¾, ⅓, ⅔, tenths and fifths Calculate mentally using brackets Understand the value of M,HTh,TTh,Th,H,T&U	Continue to rehearse all multiplication tables up to 12 x 12 Know and apply the tests of divisibility: x4 x6 x8 Know all square numbers to 12 x 12 Know all square roots to 10 x 10 Know the square roots to 15 x 15 Know all prime numbers within 50 Know the prime numbers within 100	Understand the = sign in balancing equations Use and understand < and > signs Know the addition and subtraction facts for two place decimal complements of 1 Find patterns within number bonds to 1 (two DP) Link two decimal place number bonds to 1, to number bonds to 100 Know the addition and subtraction facts for three place decimal complements of 1 Find patterns within number bonds to 1 (three DP) Link three decimal place number bonds to 1, to number bonds to 100	Know doubles and halves of one digit decimals Know doubles and halves of two digit decimals Know the doubles and halves of all multiples of 10 to 10,000 Know the doubles and halves of all multiples of 1000 to 100,000	Perform mental calculations, including with mixed operations and large numbers	Know: • Angles on a straight line Illustrate and name parts of a circle, including radius, diameter and circumference and know that the diameter is twice the radius