

## 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  |
|---|---|---|--|--|--|---|
|   | <p>Counting is essential in developing a deep understanding of the number system, number line and place value of numbers.</p> <p>Children need lots of practice at crossing boundaries, understanding the value of each digit in the place value columns.</p> <p>Children should become fluent in counting from any given number, in steps of any size.</p> <p>Children should be as fluent counting backwards as they are counting forwards.</p> <p>Counting links into understanding about number sequences.</p> <p>Children should become proficient in visualising a number line when counting.</p> | <p>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</p> <p>There are different stages to learning multiplication tables:</p> <ul style="list-style-type: none"> <li>Counting up</li> <li>Counting back</li> <li>Chanting</li> <li>Recalling multiplication facts</li> <li>Recalling division facts</li> <li>Recalling x10 greater and x10 smaller facts</li> <li>Recalling x100 greater and x100 smaller facts</li> <li>Extending into negative numbers</li> <li>Recalling related fraction facts</li> <li>Writing number sentences in different ways</li> <li>Understanding balancing number sentences</li> </ul> | <p>A good understanding of number bonds will allow the children to use this knowledge when solving problems.</p> <p>Children who are unable to rely on these key facts will ultimately be doing harder maths.</p> <p>Using number bonds in context is essential:</p> <ul style="list-style-type: none"> <li>Money</li> <li>Measures</li> </ul> <p>Links should be made to how basic number bonds to 10 can be used with other number bonds.</p> <p>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.</p> <ul style="list-style-type: none"> <li><math>6 + 4 = 10</math></li> <li><math>10 = 6 + 4</math></li> <li><math>10 - 6 = 4</math></li> <li><math>4 = 10 - 6</math></li> <li><math>4 + 6 = 7 + 3</math></li> </ul> <p>Links should be made to addition and subtraction facts within number bonds.</p> | <p>It is essential that children understand the opposite relationship of doubling and halving.</p> <p>Children should become proficient in partitioning, and partitioning in different ways, in order to double and halve successfully e.g.</p> <ul style="list-style-type: none"> <li><math>75 = 70 + 5</math></li> <li><math>75 = 60 + 15</math></li> </ul> <p>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.</p> <ul style="list-style-type: none"> <li>Double 6 = 12</li> <li>Double 60 = 120</li> </ul> | <p>Children should become flexible when adding and subtracting mentally, using a range of different strategies:</p> <ul style="list-style-type: none"> <li>Counting on</li> <li>Counting back</li> <li>Visualising a number line</li> <li>Use of fingers and other representations</li> <li>Partitioning</li> <li>Finding and using number bonds to aid easier calculations</li> </ul> <p>Children should have a deep understanding of:</p> <ul style="list-style-type: none"> <li>the = sign in balancing equations</li> <li>the &lt; and &gt; signs</li> <li>missing number calculations</li> </ul> <p>... and should regularly use and recognise these types of number sentences.</p> | <p>In order for the children to be able to apply knowledge and understanding of different measures, they need to rapidly recall key measures facts.</p> |
| R | <p>Count the numbers in order to 5<br/>Count back from 5 to 0 in order<br/>Count the numbers in order to 10<br/>Count back from 10 to 0 in order<br/>Count the numbers in order to 20<br/>Count back from 20 to 0 in order<br/>Read numbers to 10<br/>Write numbers to 10<br/>Count numbers to 10<br/>Order numbers to 10<br/>Read numbers to 20<br/>Write numbers to 20<br/>Count numbers to 20<br/>Order numbers to 20</p>  | <p>Count in 10s</p> <p>Count in 2s</p>  | <p>Partition numbers to 5 into two groups</p>  |  | <p>Use physical representations to add and subtract</p>  | <p>Know the days of the week in order</p>   |
| 1 | <p>Count forwards and backwards in steps of 10<br/>Count forwards and backwards in steps of 2<br/>Count forwards and backwards in steps of 5<br/>Count to and across 100, forwards and backwards, from any given number<br/>Understand equal, more than, less than<br/>Given a number, identify one more and one less</p>   | <p>x10</p>  | <p>Know all number bonds to 5<br/>Find patterns in number bonds to 5</p> <p>Know all number bonds to 10<br/>Find patterns in number bonds to 10</p> <p>Know all addition facts for all numbers between 0 and 10<br/>Know all subtraction facts for all numbers between 0 and 10</p> <p>Understand missing number calculations</p>  | <p>Know all doubles to 10</p> <p>Know all halves to 10</p>   | <p>Add a one digit number to a two digit number<br/>Subtract a one digit number from a two digit number</p> <p>Add numbers to 10<br/>Subtract numbers to 10</p> <p>Add a multiple of 10 to a two digit number (using a 100 square and flip flap)<br/>Subtract a multiple of 10 from a two digit number (using a 100 square and flip flap)</p> <p>Solve missing number calculations</p> <p>Understand the effect of adding and subtracting 0</p>  | <p>Know the seasons in order</p> <p>Know the months of the year in order</p>  |
| 2 | <p>Count in 10s from any given number, forwards and backwards</p> <p>Count in 2s from any given number, forwards and backwards, crossing boundaries</p> <p>Count in steps of 2, 3 and 5 from 0, forwards and backwards</p> <p>Understand the value of T &amp; U</p>   | <p>x2</p> <p>x5</p> <p>Children recognise odd and even numbers</p>  | <p>Know all number bonds to 20<br/>Find patterns in number bonds to 20</p> <p>Link number bonds to 20 to number bonds to 10</p> <p>Understand the = sign in balancing equations</p> <p>Use and understand &lt; and &gt; signs</p> <p>Understand missing number calculations</p>  | <p>Know the doubles of all numbers to 20</p> <p>Know the halves of all numbers to 20</p>   | <p>Add multiples of 10 including crossing significant boundaries</p> <p>Subtract multiples of 10 including crossing significant boundaries</p> <p>Know all addition facts for multiples of 10 to 100</p> <p>Know all subtraction facts for multiples of 10 to 100</p>  | <p>Know how many p in a £</p> <p>Know the number of minutes in an hour</p> <p>Know the number of hours in a day</p>                                     |

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|---|--|---|---|--|--|--|
| 3 | <p>Count from 0 in multiples of 100 &amp; 50</p> <p>Count from 0 in multiples of 4 &amp; 8</p> <p>Count in 5s from any given number, forwards and backwards, crossing boundaries</p> <p>Count in 4s from any given number, forwards and backwards, crossing boundaries</p> <p>Count in 3s from any given number, forwards and backwards, crossing boundaries</p> <p>Find 10 or 100 more / less than a given number</p> <p>Understand the value of H, T &amp; U</p> | <p>x4<br/>x3<br/>x8</p> <p>x50<br/>x100</p> <p>Children recognise that multiples of even times tables are all even</p>  | <p>Understand the = sign in balancing equations</p> <p>Use and understand &lt; and &gt; signs</p> <p>Understand missing number calculations</p> <p>Know all number bonds to 100</p> <p>Visualise number bonds to 100 on a number line</p> <p>Find patterns within number bonds to 100</p>   | <p>Know doubles of all whole numbers to 20</p> <p>Know halves of all whole numbers to 20</p> <p>Know doubles of all multiples of 10 to 500</p> <p>Know halves of all multiples of 10 to 500</p> <p>Know doubles of all multiples of 100 to 5000</p> <p>Know halves of all multiples of 100 to 5000</p> | <p>Know all addition and subtraction facts for multiples of 100 to 1000</p> <p>Know all addition and subtraction facts for multiples of 5 with a total of 100</p> <p>Know all addition and subtraction facts for number pairs that total 100</p> <p>Add and subtract mentally:</p> <ul style="list-style-type: none"> <li>• A three digit number and ones</li> <li>• A three digit number and tens</li> <li>• A three digit number and hundreds</li> </ul> | <p>Know the number of seconds in a minute</p> <p>Know the number of days in each month, year and leap year</p> <p>Understand am and pm; noon and midnight</p> <p>Recognise right angles</p>  |
| 4 | <p>Count from 0 in multiples of 25 and 1000</p> <p>Count from 0 in multiples of 6, 9, 7, 11 and 12</p> <p>Understand the value of Th,H,T&amp;U</p> <p>Find 1000 more / less than a given number</p> <p>Count backwards through 0 to include negative numbers</p>   | <p>x6<br/>x9<br/>x7<br/>x11<br/>x12</p> <p>x25<br/>x1000</p> <p>All multiplication tables up to 12 x12 should be known by the end of Y4</p> <p>Children recognise that multiples of even times tables are all even</p>  | <p>Understand the = sign in balancing equations</p> <p>Use and understand &lt; and &gt; signs</p> <p>Understand missing number calculations</p> <p>Recognise and use factor pairs and commutativity in mental calculations</p> <p>Know all pairs of multiples of 50 with a total of 1000</p>  | <p>Know doubles and halves of all whole numbers to 50</p> <p>Know doubles and halves of all multiples of 5 to 1000</p> <p>Know doubles and halves of all multiples of 50 to 5000</p>   | <p>Add and subtract pairs of two digit numbers</p> <p>Add and subtract 9/19/29 etc. to two digit numbers</p> <p>Add and subtract 11/21/31 etc. to two digit numbers</p>  | <p>Read Roman Numerals to 100</p> <p>Know the number of weeks in a year</p> <p>Know:</p> <ul style="list-style-type: none"> <li>• m in km</li> <li>• cm in m</li> <li>• 90° in a right angle</li> </ul>                              |
| 5 | <p>Count forwards and backwards from any given number, in any steps, crossing boundaries and into negative numbers</p> <p>Count forwards and backwards in steps of powers of 10 for any given number up to 1 000 000</p> <p>Count forwards and backwards through 0 with positive and negative numbers</p> <p>Understand the value of HTh,TTTh,Th,H,T&amp;U</p>   | <p>Continue to rehearse all multiplication tables up to 12 x 12</p> <p>Know and apply the tests of divisibility:</p> <p>x2<br/>x3<br/>x5<br/>x9<br/>x10</p> <p>Recall prime numbers up to 19</p> <p>Recognise and use square numbers and cube numbers, and the notation for squared (<math>^2</math>) and cubed (<math>^3</math>)</p>                   | <p>Understand the = sign in balancing equations</p> <p>Use and understand &lt; and &gt; signs</p> <p>Understand missing number calculations</p> <p>Know all addition and subtraction facts for decimals that total 1 (one DP)</p> <p>Find patterns within number bonds to 1</p> <p>Know all addition and subtraction facts for decimals that total 10 (one DP)</p> <p>Find patterns within number bonds to 10</p> <p>Find all the factor pairs of a number</p>  | <p>Know doubles and halves of all whole numbers to 100</p> <p>Know doubles and halves of all multiples of 10 to 1000</p> <p>Know doubles and halves of all multiples of 100 to 10,000</p> <p>Know the doubles and halves of all two-digit numbers</p>  | <p>Add and subtract numbers mentally with increasingly large numbers</p>   | <p>Read Roman Numerals to 1000</p> <p>Know:</p> <ul style="list-style-type: none"> <li>• mm in cm</li> <li>• ml in a l</li> <li>• g in a kg</li> <li>• angles of a triangle</li> <li>• angles at a point</li> </ul>                  |
| 6 | <p>Count forwards and backwards from any given number, in any steps, crossing boundaries and into negative numbers</p> <p>Know the decimal and percentage equivalents of the fractions <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{3}{4}</math>, <math>\frac{1}{5}</math>, <math>\frac{2}{5}</math>, tenths and fifths</p> <p>Calculate mentally using brackets</p> <p>Understand the value of M,HTh,TTTh,Th,H,T&amp;U</p>                     | <p>Continue to rehearse all multiplication tables up to 12 x 12</p> <p>Know and apply the tests of divisibility:</p> <p>x4<br/>x6<br/>x8</p> <p>Know all square numbers to 12 x 12</p> <p>Know all square roots to 10 x 10</p> <p>Know the square roots to 15 x 15</p> <p>Know all prime numbers within 50</p> <p>Know the prime numbers within 100</p> | <p>Understand the = sign in balancing equations</p> <p>Use and understand &lt; and &gt; signs</p> <p>Know the addition and subtraction facts for two place decimal complements of 1</p> <p>Find patterns within number bonds to 1 (two DP)</p> <p>Link two decimal place number bonds to 1, to number bonds to 100</p> <p>Know the addition and subtraction facts for three place decimal complements of 1</p> <p>Find patterns within number bonds to 1 (three DP)</p> <p>Link three decimal place number bonds to 1, to number bonds to 100</p> | <p>Know doubles and halves of one digit decimals</p> <p>Know doubles and halves of two digit decimals</p> <p>Know the doubles and halves of all multiples of 10 to 10,000</p> <p>Know the doubles and halves of all multiples of 1000 to 100,000</p>   | <p>Perform mental calculations, including with mixed operations and large numbers</p>  | <p>Know:</p> <ul style="list-style-type: none"> <li>• Angles on a straight line</li> </ul> <p>Illustrate and name parts of a circle, including radius, diameter and circumference and know that the diameter is twice the radius</p> |