



Kennington CE Academy

Calculation Policy

Document Information	Date/source of Policy	Responsibility
Date of review	January 2022	Alex Grout and Matt Perkins
Date of new review	September 2022	Alex Grout and Matt Perkins
Source of policy		
Date of Adoption	September 2016	

	Stage A (entering KA)	Stage B	Stage C	Stage D	Stage E	Stage F	Stage G (exiting KA)
Addition	<p>Number line</p> $23 + 12 = 23 + 10 + 2$	<p>Visual representation using Berge, Chips & Peg</p> $356 + 213 =$	<p>Partitioning using expanded column</p> $300 + 50 + 8$ $\quad \quad 70 + 3$ <hr/> $300 + 120 + 11 = 431$	<p>Partitioning – informal</p> <p>Partition the second number only e.g.</p> $358 + 73 = 358 + 70 + 3$ $= 428 + 3$ $= 431$	<p>Compact column</p> $\begin{array}{r} 358 \\ + 73 \\ \hline 431 \end{array}$	<p>Compact column with decimals</p> $\begin{array}{r} 124.9 \\ + 137.25 \\ \hline 262.15 \end{array}$	
Subtraction	<p>Use empty number line to count back a small amount in chunks (partition second number only)</p> $37 - 12 = 25$	<p>Find a small difference by counting up</p> $42 - 39 = 3$	<p>Number sentences encouraging children to use number sentences and fill in missing numbers</p> $7 - 3 = \square$ $\square = 7 - 3$ $7 - \square = 4$ $4 = \square - 3$	<p>Visual representation</p> $356 - 213 =$	<p>Partitioning - informal</p> $92 - 56 =$	<p>Compact Column – no decomposition</p> $\begin{array}{r} 37 \\ - 21 \\ \hline 16 \end{array}$	<p>Compact Column – decomposition</p> $\begin{array}{r} 756 \\ - 88 \\ \hline 668 \end{array}$
Multiplication	<p>Counting in groups – Repeated Addition</p> <p>To understand using pictures/objects, understanding that you start with a fixed set or a value and you repeat it</p> <p>First number is number you start with – second number is how many lots of that number you want.</p> 2×3 $2 \text{ times } 3$ 2 three times 3 lots of 2 (not 2 lots of 3)	<p>Arrays</p> <p>Using to reinforce grouping and commutability</p> $8 = 4 \times 2$ or 4×4	<p>Family of facts</p> $2 \times 7 = 14$ $7 \times 2 = 14$ $14 \div 2 = 7$ $14 \div 7 = 2$	<p>Partitioning</p> $13 \times 4 = 52$ $10 \times 4 = 40$ $3 \times 4 = 12$ $40 + 12 = 52$	<p>Vertical format, expanded working</p> $\begin{array}{r} 38 \\ \times 7 \\ \hline 266 \end{array}$ <p>56 (7 x 8) 210 (7 x 30) 266</p>	<p>Vertical multiplication, compact method</p> $\begin{array}{r} 38 \\ \times 7 \\ \hline 266 \end{array}$	<p>Vertical multiplication of 2d x 2d</p> $\begin{array}{r} 58 \\ \times 58 \\ \hline 464 \\ 2900 \\ \hline 3364 \end{array}$
Division	<p>Pictorial Representations</p> <p>Understand the vocabulary of sharing. E.g. share 6 sweets between the 3 children (equally). Or grouping E.g. 3 groups of 2</p> <p>Progressing to remainders</p>	<p>Division as sharing and grouping</p> $30 \div 6$ can be Sharing: Thirty shared between six = 5 5 x 6 (six lots of 5) or Grouping: How many 6's make 30 = 5 6 x 5 (five lots of six)	<p>Family of facts and secure place value</p> $6 \div 2 = 3$ $3 \times 2 = 6$ $6 \div 2 = 3$ $2 \times 3 = 6$	<p>Short division</p> $36 \div 3 = 12$ $\begin{array}{r} 12 \\ 3 \overline{) 36} \end{array}$	<p>Short division</p> $81 \div 3 = 27$ $\begin{array}{r} 27 \\ 3 \overline{) 81} \end{array}$	<p>Chunking up using known facts</p> $472 \div 14 =$ $\begin{array}{r} 40 \text{ r } 12 \\ 14 \overline{) 472} \end{array}$ $14 \times 10 = 140$ $140 \ 10$ $14 \times 20 = 280$ $320 \ 30$ $14 \times 10 = 140$ $460 \ 40$	
Fractions Addition/ Subtraction				(Yr 3) add and subtract fractions with the same denominator within one whole (e.g. $5/7 + 1/7 = 6/7$)	(Yr 4) add and subtract fractions with the same denominator	(Yr 5) add and subtract fractions with the same denominator and multiples of the same number recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. $2/5 + 4/5 = 6/5 = 1 1/5$)	(Yr 6) add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
Fractions Multiplication Subtraction						(Yr 5) multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	(Yr 6) multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $1/4 \times 1/2 = 1/8$) multiply one-digit numbers with up to two decimal places by whole numbers divide proper fractions by whole numbers (e.g. $1/3 \div 2 = 1/6$)