

GREAT CHART PRIMARY SCHOOL

CALCULATION POLICY

September 2024






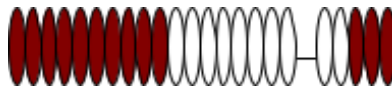
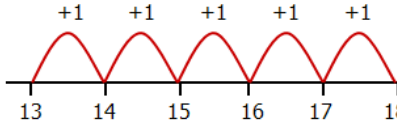
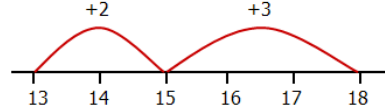
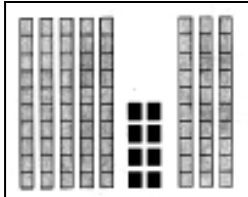
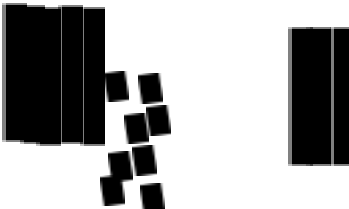
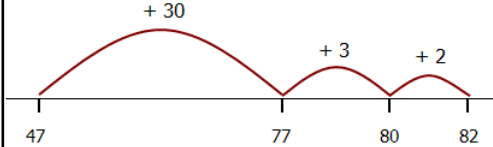
The Progression of Skills for addition, subtraction, multiplication and division are set out on the following pages.

Our Philosophy for teaching and learning is through our

‘Make it! Draw it! Write it!’ approach (CPA).

At the end of the ‘Draw it’ stage, teachers demonstrate, and children rehearse, how the ‘bar model’ supports problem solving and reasoning. See Appendix 1 for exemplification in the progression of the bar model (*hertsforlearning.co.uk*).

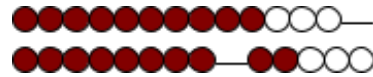
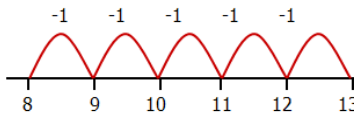

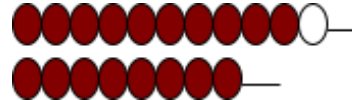
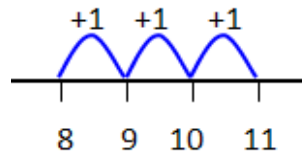
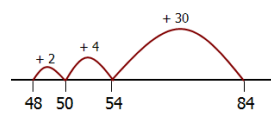
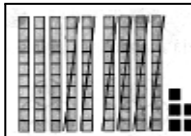

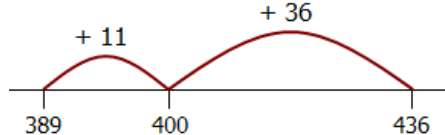

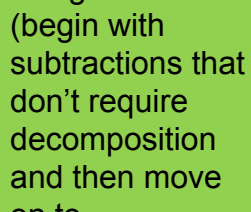
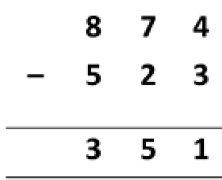

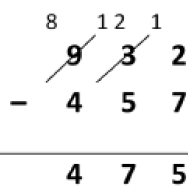
Within all stages of the progression of skills, children are exposed to procedural and conceptual variation, developing their mathematical approaches and mastery skills. See Appendix 2 for exemplification on Procedural and Conceptual Variation (*NCETM Maths Hubs, Cambridge*).

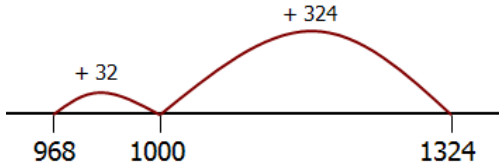
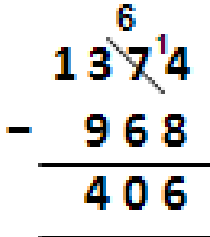
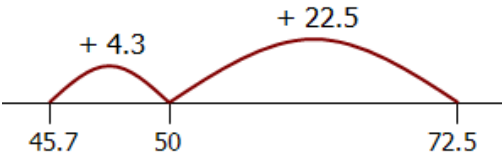
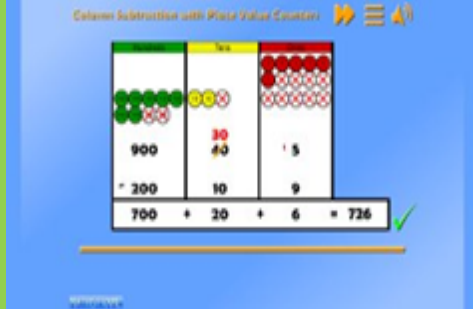
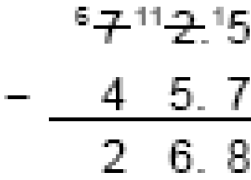
						Manipulatives/Concret	Vocabulary	
Addition								
Initial Stages	Pupils use concrete objects and pictorial representations	Progression of Skills						
		Practical or recorded using ICT. Hannah ... listed how many girls and how many boys were outside. [She] was able to say that “There are 5 girls and 4 boys. That’s 9 altogether”. When playing in the shop Christopher used his shopping list to add 2 amounts. He said “the beans are 5 pence and the bananas are 3 pence, altogether that is 8 pence.” [EYFS Profile exemplifications, STA]	Pictures/Objects I eat 2 cakes and my friend eats 3. How many cakes did we eat altogether? Language rich.	Symbolic 8 people are on the bus. 5 more get on at the next stop. How many people are on the bus now s  [Might be recorded as: 8 + 5 = 13]	Numicon Straws Cubes Concrete objects (compare bears etc) Teacher beadstring/bar	add, more, and make, sum, total altogether score double one more, two more, ten more... how many more to make... ? how many more is... than...?		
Stage One	Pupils use concrete objects and pictorial representations	Practical/recorded using ICT Pictures/Symbolic (see above)	Use known facts/p partitioning 8 + 5 + 13 8 + 2 = 10 10 + 3 = 13	Visual (modelled using bead strings) 13 + 5 = 18   Using drywipe numberlines	Visual (efficient jumps) 13 + 5 = 18  [jumps may be in 1s] Using drywipe numberlines	Numicon T and U Numicon sets Numicon number lines etc Straws Cubes Concrete objects (compare bears etc) Beadstrings Numberlines (drywipe) Multilink/counters	+, add, more, plus make, sum, total altogether score double, near double one more, two more... ten more how many more to make...? how many more is... than...? how much more is...?	
	Stage Two	Recognise/use inverse relationship between +/- and use to check calcs and missing number problems. Pupils use concrete objects, pictorial representations and mental strategies.	Practical/visual images 58 + 30 = 88  Draw rods and dots 	 Visual (efficient jumps) 35 + 47= 82 [Also jumps can be in 10s and 1s] Using empty numberlines – progress from drywipe to drawing their own	No number line 35 + 47 = 82 47 + 30 = 77 77 + 3 = 80 80 + 2 = 82 Linear recording	Partitioning 35 + 47 = 82 40 + 30 = 70 7 + 5 = 12 Linear recording	Partitioning could be extended to recording addition in columns which supports place value and prepares for formal written methods with larger numbers. (Higher ability children). 47 + 35 = 82	Numicon Straws Cubes Empty numberlines Dienes




																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					</
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	----

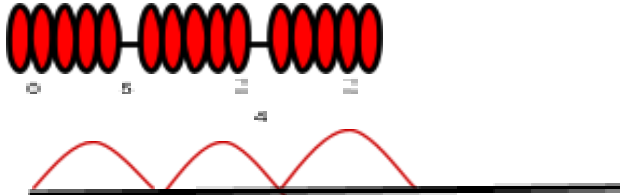
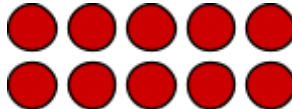
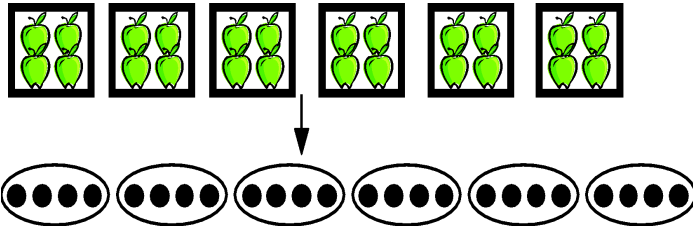
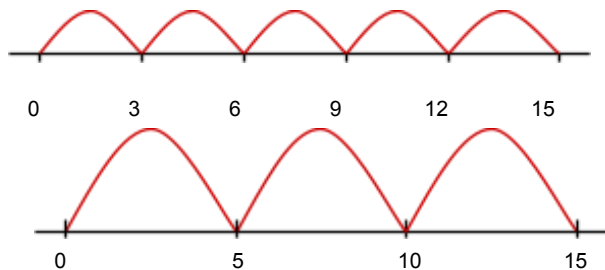
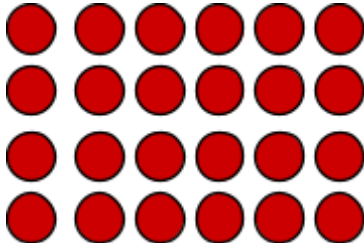
S t a g e S i x		<div><div></div><div>60.00</div></div>			
		72.26			
S t a g e S i x		<div>Expanded vertical 3.243 + 18.070 = 21.313</div> <div><div><div>3.243</div><div>+ 18.070</div><div>0.003</div><div>0.110</div><div>0.200</div><div>21.000</div></div><div></div></div>	Compact vertical		Dienes (with decimals) Place Value counters
			<div><div>3.243</div><div>+ 18.070</div><div>21.313</div><div>1 1</div></div>		add, addition, more, plus, increase sum, total, altogether score double, near double how many more to make...?

Subtraction					
	Progression of Skills			Manipulatives/ Concrete Objects	Vocabulary
Initial stages	<p>Practical or recorded using ICT.</p> <p>Chloe was playing in the maths area. “I need three more” she said as she added some cubes to the circle. She then realised she had more than her friend. “Oh, I have too many”. She removed one. “Now we have the same”.</p> <p>During a game of skittles outdoors Joseph knocked three numbered skittles down. He was able to calculate his score in his head.</p> <p>[EYFS Profile exemplifications, STA]</p>	<p>Pictures/Objects</p> <p>I have five cakes. I eat two of them. How many do I have left?</p> <div><div>XX</div><div>Might be recorded as: 5 – 2 = 3</div></div>	<p>Symbolic</p> <p>Mum baked 9 biscuits. I ate 5. How many were left?</p> <div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div></div></div><div>Might be recorded as: 9 – 5 = 4]</div></div>	<p>Numicon</p> <p>Straws</p> <p>Cubes</p> <p>Concrete objects (compare bears etc)</p> <p>Teacher beadstring/bar</p>	<p>take (away), leave how many are left/left over? how many have gone? one less, two less... ten less... how many fewer is... than...? difference between is the same as</p>

S t a g e O n e	Practical or recorded using ICT.	Taking jumps of 1 (modelled using bead strings) $13 - 5 = 8$   Using drywipe numberlines	Taking (efficient jumps) $13 - 5 = 8$  Using drywipe numberlines No number line – using known facts: $13 - 3 = 10$ $10 - 2 = 8$	Counting on – jumps of 1 (modelled using bead strings) $11 - 8 = 3$  	Counting on (efficient jumps) With, or without, number line (using known facts) $8 + 2 = 10$ $10 + 1 = 11$	Concrete objects (compare bears etc) Beadstrings Numberlines (drywipe)	–, subtract, take (away) leave how many are left/left over? how many have gone? one less, two less, ten less... how many fewer is... than...? how much less is...? difference between half, halve =, equals, sign, is the same as		
	S t a g e T w o	Pupils use concrete objects and pictorial representations and mental strategies (eg place value counters, Dienes)	Investigations with tens and ones equipment e.g. dienes, numicon... Pictorial representation Symbolic representation	 Counting on $84 - 48 = 36$ [Also jumps can be in 10s/1s] Using empty numberlines – progress from drywipe to drawing their own	Partitioning $84 - 48 =$ $84 - 8 = 40$ Begin with taking the unit away. $84 - 8 = 76$ $76 - 40 = 36$	Practical/visual images $95 - 60 = 35$  Symbolic etc... 	<i>Recording subtraction in columns supports place value and prepares for formal written methods with larger numbers.</i> $\begin{array}{r} 90 \text{ and } 8 \\ 30 \text{ and } 5 \\ \hline 60 \text{ and } 3 \end{array}$ $98 - 35 = 63$	Numicon Straws Cubes Empty numberlines Dienes	–, subtract, subtraction, take (away), minus leave, how many are left/left over? one less, two less... ten less... one hundred less how many fewer is... than...? how much less is...? difference between half, halve =, equals, sign, is the same as tens boundary
S t a g e T h r e e	Use formal written methods of columnar addition TU - TU HTU - TU HTU - HTU	 Counting on $436 - 389 = 47$	Expanded columns  – no decomposition	Model subtraction using dienes (begin with subtractions that don't require decomposition and then move on to decomposition). 	$874 - 523 = 351$  (no decomposition)	Expanded  Decomposition $773 - 458 = 315$	Decomposition NB decompose just one column initially  $932 - 457 = 475$	Empty numbelines (writing own) Dienes	–, subtract, subtraction, take (away), minus leave, how many are left/left over? one less, two less... ten less... one hundred less how many fewer is... than...? how much less is...? difference between half, halve =, equals,


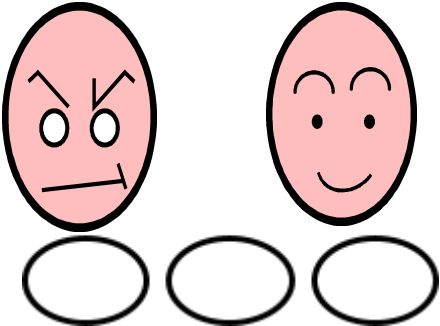
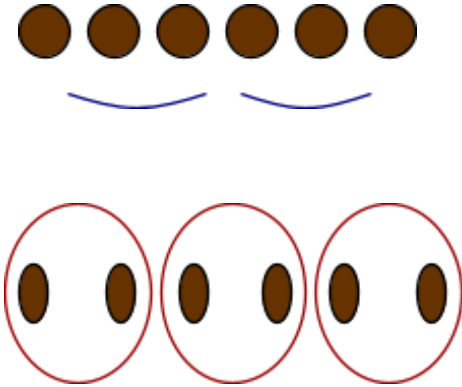
									sign, is the same as tens
									boundary, hundreds boundary
Stage Four	Use formal written methods of columnar subtraction . HTU - HTU ThHTU - TU ThHTU - HTU ThHTU – ThHTU	 Counting on 1324 - 968 = 356	Decomposition: 1374 - 968 = 406 (model with dienes) <div>1000 and 300 and 70 and 4 - 900 and 60 and 8 -----</div> <div>1300 and 60 and 14 - 900 and 60 and 8 ----- 400 and 0 and 6</div>			Decomposition  1374 - 968 = 406	Dienes	subtract, subtraction, take (away), minus, decrease leave, how many are left/left over? difference between half, halve how many more/fewer is... than...? how much more/less is...? equals, sign, is the same as tens boundary, hundreds boundary inverse	
Stage Five	Subtract whole numbers >4 digits, including using formal methods (columnar subtraction) . Decimals up to 2dp (eg 72.5 - 45.7)	Counting on  72.5 - 45.7 = 26.8	Taking away (no number line) 72.5 - 45.7 72.5 - 40 = 32.5 32.5 - 5 = 27.5 27.5 - 0.7 = 26.8	Decomposition (model with dienes/place value counters) 	Decomposition 72.5 - 45.7 = 26.8 	Dienes (with decimals) Place Value counters	subtract, subtraction, take (away), minus, decrease leave, how many are left/left over? difference between half, halve how many more/fewer is... than...? how much more/less is...? equals, sign, is the same as tens boundary, hundreds boundary units boundary, tenths boundary inverse		
Stage Six	Solve multi-step problems in contexts, deciding which operations/methods to use and why. Decimals up to 3dp (Context: Measures)	See previous years						subtract, subtraction, take (away), minus, decrease leave, how many are left/left over? difference between half, halve how many more/fewer is... than...? how much more/less is...? equals, sign, is the same as tens boundary, hundreds boundary units boundary, tenths boundary inverse	


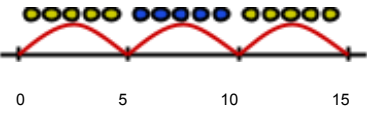
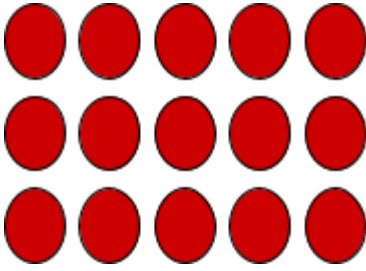
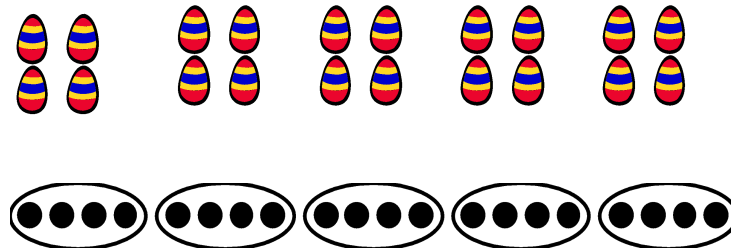
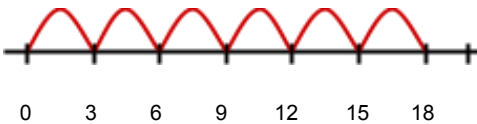
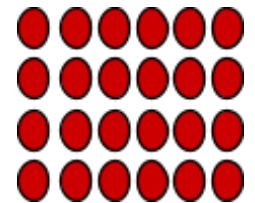
	Progression of Skills 			Manipulatives/ Concrete Objects	Vocabulary
Initial	Practical/ recorded using ICT (eg digital photos / pictures on IWB) This domino is a double 4. How many spots does it have?	Pictures/Objects How many socks in three pairs? 	Symbolic 3 pairs, 2 socks in each pair: 	Counting stick Concrete objects (eg socks, gloves etc) Numicon	Set, pair, group, times

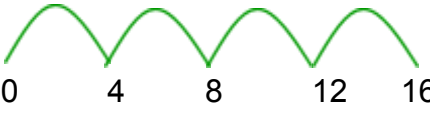
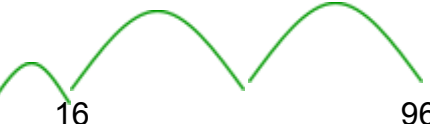
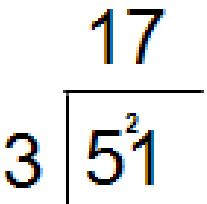
S t a g e s																						
S t a g e O n e	Practical/recorded using ICT Pictures/Symbolic There are five cakes in each bag. How many cakes are there in three bags?	Visual (eg modelled using bead strings) 5 x 3 or 3 x 5 [two, three times] or [three groups of two] 	Arrays 5 x 2 or 2 x 5 	Counting sticks Concrete examples of arrays (cake tins, egg boxes etc) Numicon	lots of, groups of ×, times, multiply																	
S t a g e T w o	Pictures/Symbolic There are four apples in each box. 	Repeated addition 5 x 3 or 3 x 5 	Arrays 6 x 4 or 4 x 6 	Counting sticks Concrete examples of arrays (cake tins, egg boxes etc) Numicon	lots of, groups of ×, times, multiply, multiplied by multiple of once, twice, three times... ten times... times as (big, long, wide... and so on) repeated addition array row, column double																	
	How many apples in six boxes?																					
S t a g e T h r e e	GRID 36 x 4 = 144 <table border="1"><tr><td>X</td><td>30</td><td>6</td></tr><tr><td>4</td><td>120</td><td>24</td></tr></table>	X	30	6	4	120	24	Partitioned 36 x 4 = 144 30 x 4 = 120 6 x 4 = 24	Expanded 36 x 4 = 144 <table border="1"><tr><td>36</td></tr><tr><td>x 4</td></tr><tr><td>(6 x 4) 24</td></tr><tr><td>(30 x 4) 120</td></tr><tr><td>144</td></tr></table>	36	x 4	(6 x 4) 24	(30 x 4) 120	144	<table border="0"><tr><td>36</td></tr><tr><td>x 4</td></tr><tr><td>144</td></tr><tr><td>2</td></tr></table> Compact 36 x 4 = 144	36	x 4	144	2	Pupils develop reliable written methods for multiplication, starting with calculations of TU by U (progressing to formal written methods of short multiplication).	Counting stick Dienes	lots of, groups of ×, times, multiply, multiplication, multiplied by multiple of, product once, twice, three times... ten times... times as (big, long, wide... and so on) repeated addition array row, column double
	X	30	6																			
4	120	24																				
36																						
x 4																						
(6 x 4) 24																						
(30 x 4) 120																						
144																						
36																						
x 4																						
144																						
2																						

S t a g e F o u r	Partitioned	Expanded	Compact	Grid	Expanded	Compact	Counting stick	lots of, groups of times, multiplied
	43 x 258 (estimate: 40 x 6 = 240) 40 x 6 = 240 3 x 6 = 18	<div>43 x 6 ----- 18 (3 x 6) 240 (40 x 6) ----- 258</div> 43 x 6	144 <div>2 4 x 6 ----- 1 4 4 2</div>	<div>x 300 40 2 7 2100 280 14</div> 342 x 7 = 2394	<div>237 x 4 (estimate: 250 x 4 = 1000) 237 x 4 ----- 28 120 800 948</div>	<div>3 4 2 x 7 ----- 2 3 9 4 2 1</div> 342 x 7 = 2394		multiplication, multiplied by multiple of, product once, twice, three times... ten times... times as (big, long, wide... and so on) repeated addition array row, column double
S t a g e F i v e	Compact	Grid	Expanded	Compact			Counting stick	lots of, groups of times, multiply, multiplication, multiplied by multiple of, product once, twice, three times... ten times... times as (big, long, wide... and so on) repeated addition array row, column double,
	2741 x 6 = 16446 (estimate 3000 x 6 = 18000) <div>2 7 4 1 x 6 ----- 1 6 4 4 6 4 2</div>	47 x 36 = 1692 (estimate 50 x 40 = 2000) <div>x 40 7 30 1200 210 1410 6 240 42 282 ----- 1692</div>	<div>27 x 34 ----- 28 (7 x 4) 80 (20 x 4) 210 (7 x 30) 600 (20 x 30) ----- 918</div> (estimate 30 x 30 = 900)	24 x 16 = 384 <div>2 4 x 1 6 ----- 2 4 0 1 4 4 ----- 3 8 4</div> (estimate 25 x 15 = 375)	<div>1 2 1 2 4 x 2 6 ----- 2 4 8 0 7 4 4 ----- 3 2 2 4 1 1</div> Compact 124 x 26 = 3224 <div>see Y6 – demonstrating commutativity</div>			
S t a g e S i x	Compact	Compact	Grid	Compact	Grid		Counting stick	lots of, groups of times, multiply, multiplication, multiplied by multiple of, product once, twice, three times... ten times... times as (big, long, wide... and so on) repeated addition array, row, column double,
	256 x 18 = 4608 (estimate 250 x 20 = 5000) <div>256 x 18 ----- 2560 2048 ----- 4608 1</div>	124 x 26 = 3224 <div>1 2 1 2 4 x 2 6 ----- 7 4 4 2 4 8 0 ----- 3 2 2 4 1 1</div> [NB See Y5 method – demonstrating commutativity]	4.7 x 8 = 37.6 (estimate 5 x 8 = 40) <div>x 4 0.7 8 32 5.6 3</div>	4.7 x 8 = 37.6 (estimate 5 x 8 = 40) <div>4.7 x 8 ----- 37.6 5</div> [Or 47 x 8, then divide the solution by 10.]	5.65 x 9 = 50.85 (estimate 6 x 9 = 54) <div>x 5 0.6 0.05 9 45 5.4 0.45 50.85</div> [Or compute 565 x 9, then divide the solution by 100.] (Move onto compact method when children are ready)			

Division

	Progression of Skills 			Manipulatives/ Concrete Objects	Vocabulary
Initial Stages	Practical / recorded using ICT (eg digital photos/pictures on IWB)	Pictures/Objects	Symbolic	Concrete equipment (compare bears, fruit etc) Numicon	Share Group set
		<p>6 cakes shared between 2</p>  <p>6 cakes put into groups of 2</p>	<p>6 cakes shared between 2</p> 		

Stage One	<p>Practical/recorded using ICT</p> <p>There are 14 people on the bus. Half of them get off. How many remain on the bus?</p> <p>There are 20 people in the class. One quarter are boys. How many boys are there?</p>	<p>Pictures/Symbolic</p> <p>How many apples in each bowl if I share 12 apples between 3 bowls?</p> 	<p>(modelled using bead strings)</p> $15 \div 5 = 3$ 	<p>(modelled by teacher)</p> $15 \div 5 = 3$ 	<p>equipment (compare bears, fruit etc) Concrete arrays Numicon Beadstrings</p>	<p>halve share, share equally...</p> <p>two each, three each... group in pairs, set, groups, times</p>
	<p>Pictures/Symbolic</p> <p>Four eggs fit in a box. How many boxes would you need to pack 20 eggs?</p> 	<p>Visual (modelled using bead strings)</p> $18 \div 3 = 6$ 	<p>Arrays</p> <p>Find $\frac{1}{4}$ of 24</p>  $24 \div 4 = 6$	<p>Partitioning (using known facts from 2, 5 and 10 times table)</p> $32 \div 2 = 16$ $20 \div 2 = 10$ $12 \div 2 = 6$	<p>Numicon Beadstrings Concrete arrays</p>	<p>halve share, share equally one each, two each, three each... group in pairs, threes... tens equal groups of \div, divide, divided by, divided into left, left over</p>

Stage Three	<p>Empty Numberline (chunking)</p> $96 \div 4 = 24$  20×4 	<p>Multiples of the divisor (Using known multiplication facts and multiples of those facts)</p> $85 \div 5 = 17$ $10 \times 5 = 50$ $7 \times 5 = 35$	<p>Chunking (Expanded method)</p> $51 \div 3 = 17$ <div> $\begin{array}{r} 51 \\ 30 \text{ (3 x 10)} \\ \hline 21 \\ 21 \text{ (3 x 7)} \\ \hline 0 \end{array}$ </div>	<p>Compact method (Teach in parallel with chunking)</p> $51 \div 3 = 17$ 	<p>Dienes</p>	<p>halve share, share equally one each, two each, three each...group in pairs, threes... tens equal groups of \div, divide, division, divided by, divided into left, left over, remainder</p>
-------------	--	--	--	--	---------------	--

Stage Four	<div>Multiples of the divisor</div> <div>98 ÷ 7 = 14</div> <div>10 x 7 = 70 4 x 7 = 28</div>	<div>Compact method</div> <div><div>14</div><div>7 98</div></div> <div>98 ÷ 7 = 14</div>	<div>Multiples of the divisor</div> <div>252 7 = 36</div> <div>30 x 7 = 210 6 x 7 = 42</div>	<div>Chunking (Expanded method)</div> <div><div>252</div><div>210 (7 x 30)</div><div>42</div><div>42 (7 x 6)</div><div>0</div></div> <div>252 7 = 36</div>	<div>Compact method</div> <div><div>36</div><div>7 252</div></div> <div>252 7 = 36</div>	<div>Place value counters</div>	<div>halve share, share equally one each, two each, three each... group in pairs, threes... tens equal groups of divide, division, divided by, divided into remainder factor, quotient, divisible by inverse</div>
Stage Five	<div>Chunking (with remainders)</div> <div><div>346 ÷ 8</div><div>(estimate: 400 ÷ 8 = 50)</div><div>8 346</div><div>-320 (8 x 40)</div><div>26</div><div>-24 (8 x 3)</div><div>2</div></div> <div>346 ÷ 8 = 43 r2 (estimate >40, <50)</div>	<div>Compact method (with remainders)</div> <div>432 ÷ 5 = 86 r2 (estimate: 400 ÷ 5 = 80)</div> <div><div>86 r2</div><div>5 432</div></div>	<div>8520 ÷ 6 = 1420</div> <div><div>1420</div><div>6 8520</div></div>	<div>Place Value Counters</div>	<div>halve share, share equally, one each, two each, three each... group in pairs, threes... tens equal groups of divide, division, divided by, divided into remainder factor, quotient, divisible by inverse</div>		
Stage Six	<div>Partitioning</div> <div>43.4 7 = 6.2 (estimate 42 ÷ 7 = 6)</div> <div>6 x 7 = 42 0.2 x 7 = 1.4</div>	<div>Chunking (Expanded method)</div> <div>25.6 7 = 3.2 (estimate >3, <4)</div> <div><div>25.6 ÷ 8</div><div>(estimate: 24 ÷ 8 = 3)</div><div>8 25.6</div><div>-24.0 (8 x 3.0)</div><div>1.6</div><div>-1.6 (8 x 0.2)</div><div>0</div></div>	<div>Compact method</div> <div>43.68 7 = 6.24 (estimate: 42 7 = 6)</div> <div>[Or compute 4368 ÷ 7, then divide the solution by 100.]</div> <div><div>6.24</div><div>7 43.68</div></div>	<div>Compact method (remainder as a fraction)</div> <div>496 11 (estimate 500 ÷ 10 = 50)</div> <div><div>45 r1</div><div>11 496</div></div> <div>Answer: 45 ¹/₁₁</div>	<div>Long division (compact method)</div> <div>432 15 = 28.8</div> <div><div>28.8</div><div>15 432.0</div><div>30</div><div>132</div><div>120</div><div>120</div><div>0</div></div>	<div>Place Value Counters</div>	<div>Hlave, share, share equally one each, two each, three each... group in pairs, threes... tens equal groups of divide, division, divided by, divided into remainder factor, quotient, divisible by inverse</div>