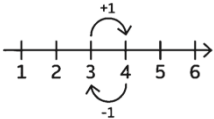

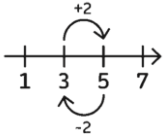
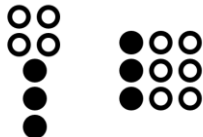
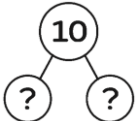
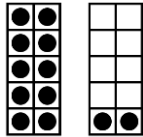

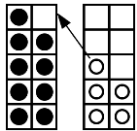

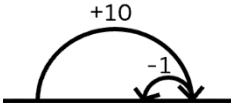

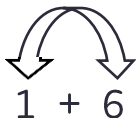


Calculation Strategies

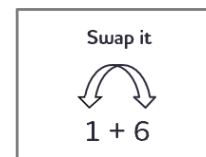
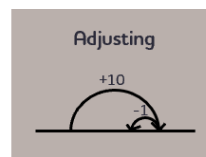
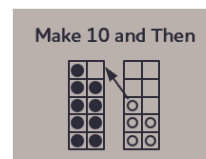
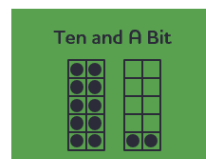
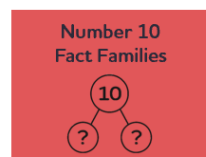
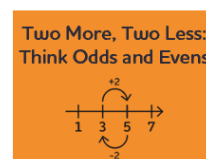
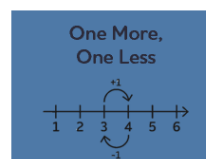
One More, One Less 	<p>When we add one, we get the next counting number. When we subtract one, we get the previous counting number (e.g. $5 - 1 = 4$).</p>	Number Neighbours: Spot the Difference 	<p>Adjacent numbers have a difference of 1. Adjacent odds and evens have a difference of 2.</p> <p>Spot number neighbours (adjacent, odds or evens) to solve subtractions of adjacent numbers (e.g. $5 - 4 = 1$), of adjacent odds (e.g. $9 - 7 = 2$) or adjacent evens (e.g. $6 - 4 = 2$).</p>
Two More, Two Less: Think Odds and Evens 	<p>If we add two to a number, we go from odd to next odd or even to next even. If we subtract two from a number, we go from odd to previous odd or even to previous even.</p>	7 Tree and 9 Square 	<p>Use these visual images to remember addition and subtractions fact families that children can find tricky. For example, visualising the 7 tree helps remember that $7 - 3 = 4$. Visualising the 9 square helps remember that $3 + 6 = 9$.</p>
Number 10 Fact Families 	<p>Go beyond just recalling the pairs of numbers that add to 10. Make sure that we can also spot additions and subtractions which we can use number bonds to 10 to solve.</p>	Ten and A Bit 	<p>The numbers 11 – 20 are made up of 'Ten and a Bit'. Recognising and understanding the 'Ten and a Bit' structure of these numbers enables addition and subtraction facts involving their constituent parts (e.g. $3 + 10 = 13$, $17 - 7 = 10$, $12 - 10 = 2$).</p>
Five and A Bit 	<p>The numbers 6, 7, 8 and 9 are made up of 'five and a bit'. This can be shown on hands, and supports decomposition of these numbers into their five and a bit parts (e.g. $5 + 3 = 8$, $9 - 5 = 4$).</p>	Make Ten and Then... 	<p>Additions which cross the 10 boundary can be calculated by 'Making Ten' first, and then adding on the remaining amount (e.g. $8 + 6$ can be calculated by thinking '$8 + 2 = 10$ and 4 more makes 14'). The same strategy can be applied to subtractions through 10.</p>
Know about 0 	<p>When we add 0 to or subtract 0 from another number, the total remains the same. If we subtract a number from itself, the difference is 0.</p>	Adjust It 	<p>Any addition and subtraction can be calculated by adjusting from a fact you know already, (e.g. $6 + 9$ is one less than $6 + 10$).</p>
Doubles and Near Doubles 	<p>Memorise doubles of numbers to 10, using a visual approach. Then use these known double facts to calculate near doubles and hidden doubles. Once we know $6 + 6 = 12$ then $6 + 7$ and $5 + 7$ is easy.</p>	Swap It 	<p>When the order of two numbers being added (addends) is exchanged the total remains the same. E.g. $1 + 8 = 8 + 1$. Sometimes reversing the order of the two addends makes addition easier to think about conceptually.</p>

Fact and Strategy Mapping –

The coloured grids bring the facts and the strategies together: they show how the 12 strategies collectively lead to fluency in each and every fact. We think of these charts as being the equivalent of your grapheme phoneme correspondence charts in phonics. In reality some facts are actually covered by more than one strategy, but the most important point is this: at the end of Number Facts Fluency Programme every child will have an alternative strategy to counting in ones for every addition and subtraction fact. Nothing is left to chance.

+	0	1	2	3	4	5	6	7	8	9	10
0	0+0	0+1	0+2	0+3	0+4	0+5	0+6	0+7	0+8	0+9	0+10
1	1+0	1+1	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+9	1+10
2	2+0	2+1	2+2	2+3	2+4	2+5	2+6	2+7	2+8	2+9	2+10
3	3+0	3+1	3+2	3+3	3+4	3+5	3+6	3+7	3+8	3+9	3+10
4	4+0	4+1	4+2	4+3	4+4	4+5	4+6	4+7	4+8	4+9	4+10
5	5+0	5+1	5+2	5+3	5+4	5+5	5+6	5+7	5+8	5+9	5+10
6	6+0	6+1	6+2	6+3	6+4	6+5	6+6	6+7	6+8	6+9	6+10
7	7+0	7+1	7+2	7+3	7+4	7+5	7+6	7+7	7+8	7+9	7+10
8	8+0	8+1	8+2	8+3	8+4	8+5	8+6	8+7	8+8	8+9	8+10
9	9+0	9+1	9+2	9+3	9+4	9+5	9+6	9+7	9+8	9+9	9+10
10	10+0	10+1	10+2	10+3	10+4	10+5	10+6	10+7	10+8	10+9	10+10

-	0	1	2	3	4	5	6	7	8	9	10
0	0-0										
1	1-0	1-1									
2	2-0	2-1	2-2								
3	3-0	3-1	3-2	3-3							
4	4-0	4-1	4-2	4-3	4-4						
5	5-0	5-1	5-2	5-3	5-4	5-5					
6	6-0	6-1	6-2	6-3	6-4	6-5	6-6				
7	7-0	7-1	7-2	7-3	7-4	7-5	7-6	7-7			
8	8-0	8-1	8-2	8-3	8-4	8-5	8-6	8-7	8-8		
9	9-0	9-1	9-2	9-3	9-4	9-5	9-6	9-7	9-8	9-9	
10	10-0	10-1	10-2	10-3	10-4	10-5	10-6	10-7	10-8	10-9	10-10
11		11-1	11-2	11-3	11-4	11-5	11-6	11-7	11-8	11-9	11-10
12			12-2	12-3	12-4	12-5	12-6	12-7	12-8	12-9	12-10
13				13-3	13-4	13-5	13-6	13-7	13-8	13-9	13-10
14					14-4	14-5	14-6	14-7	14-8	14-9	14-10
15						15-5	15-6	15-7	15-8	15-9	15-10
16							16-6	16-7	16-8	16-9	16-10
17								17-7	17-8	17-9	17-10
18									18-8	18-9	18-10
19										19-9	19-10
20											20-10



Number Facts Fluency Programme Overview

Stage	Year	Focus of stage	Mapping to the grid facts
Stage 1 Visual Number Foundations	Year 1	<ul style="list-style-type: none">Building a deep and visual understanding of numbers 1-10Subitising quantities 1 – 5, and subitising structured arrangements for quantities 6-10Recognising quantities 1-10 twos-wise and fives-wise on tens frames	Preparation for meeting the grid facts
ASSESSMENT CHECK POINT – NUMBERS 1-10			
Stage 2 Make and Break Numbers to 10		<ul style="list-style-type: none">Exploring the different ways that every number to 10 can be broken into parts and put back togetherStarting to remember some factsIntroducing addition and subtraction equations	
Stage 3 Facts and Strategies within 10		<ul style="list-style-type: none">Learning calculation strategies for adding and subtracting within 10Learning to use what you know to work out what you don't yet knowAchieving fluency in addition and subtraction facts within 10	
ASSESSMENT CHECK POINT – FACTS WITHIN 10			
Stage 4 Ten and A Bit	Year 2	<ul style="list-style-type: none">Building a deep and visual understanding of the numbers and quantities 11 to 20Understanding the concept of place valueLearning the Ten and A Bit calculation strategy	Achieving fluency in the grid facts
ASSESSMENT CHECK POINT – TEN AND A BIT FACTS			
Stage 5 Facts and Strategies across 10		<ul style="list-style-type: none">Learning the remaining calculation strategiesPracticing strategy selection to promote efficient and flexible thinkingAchieving fluency in addition and subtraction facts across 10	
ASSESSMENT CHECK POINT – FACTS ACROSS 10			
Stage 6 Extending Facts and Strategies		<ul style="list-style-type: none">Learning to extend and apply the within and across 10 facts to addition and subtraction calculations involving 2-digit numbers	
Consolidation	Year 3 Autumn Term	<ul style="list-style-type: none">Reviewing and consolidating Stage 5 and 6 to secure fluency in facts across 10 and in mental 2 digit calculation	Extending the grid facts to other calculations