



## Mathematics Fluency Policy (DRAFT)

At Katherine Semar Schools, there is an expectation that all children in Years 1-6 will be provided with the opportunity to practise their year group's fluency facts through daily fluency sessions. These daily fluency sessions will contribute to the children becoming secure and fluent with the relevant number facts by the end of the year.

Children will also be expected to practise their fluency facts regularly at home through set homework or suggested on the home learning letter. Any children who are struggling to learn their fluency facts should be provided with interventions where possible and further support from home with advice provided from the class teacher.

Fluency facts can be learnt and practised in a number of ways, some suggested activities are as follows:

- stand up, hand up, pair up
- flash cards
- orally practised e.g. ping pong facts
- written activities such as mini tests or quizzes
- matching activities
- dominoes
- rolling dice
- test your partner
- snap
- memory games
- Simon/Sally sharp eyes
- Simon says
- Bunny ears
- counting sticks

10 Minute Maths Fluency Focus

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Number Sense subitising 1 and 2 subitising 1 to 3	Number Sense subitising 1 to 4 subitising 1 to 5	Number Sense partitioning 2, 3, 4, 5 partitioning 6 to 10	- Number Sense subitising 6 to 10 partitioning 10	Number Sense Composition of 6 to 9 Composition quantities to 10.	Number Sense Patterns in number to 10.
Year 1	Number Sense Stage 1, books 1, 2, 3 Stage 2, books 1, 2, 3	Number Sense Stage 2, books 4,5,6,7.	Number Sense, Stage 3, book 1, 2, 3	Number Sense Stage 3, book 4, 5, 6,	Number Sense, Stage 3, book 7, 8, 9	Number Sense Stage 4, book 1
Year 2	Number Sense Review Stages 1 to 4	Number Sense Stage 5: Make ten and then (addition and subtraction)	Number Sense Stage 5: Doubles and Near Doubles Adjusting	Number Sense Stage 5: Strategy selection Stage 6	Multiplication and division facts for 2, 5 and 10	Multiplication and division facts for 2, 5 and 10
Year 3	Number Sense Stage 5 and 6.	Revision of multiplication and Division facts for 2, 5, 10.	Multiplication and Division facts multiplying by 1 and 0.	Multiplication and Division facts for 3, 4 and 8	Multiplication and Division facts for 3, 4 and 8	Multiplication and Division facts for 3, 4 and 8
Year 4	Multiplication facts 2,5,10	Multiplication facts 3,4,8	Multiplication facts 6,7,9	Multiplication facts Up to 12 x 12	Division Facts	Review of required facts – T assessment
Year 5	Multiples of 10 & 100 for multiplication facts 12 x 12	Count in negative numbers and know Roman numerals	Double and Halve any number with up to 1 decimal place	Know all decimals that total 1 and 10 (1 and 2 decimal places)	Recall metric conversions	Recall prime numbers to 50
Year 6	Squared, cubed and square roots	Know decimal, fraction, percentage equivalents	Recall prime numbers to 50	Doubles and halves of all multiples of 10 to 10,000	Square numbers of multiples of 10 up to 1000	

In Autumn term 2023, we invested in a fluency program called Number Sense. From January 2024 Year 1 are implementing this as a basis for their '10 minute maths' (10MM). Early Years are also using the Early Years fluency program alongside their current mathematics teaching. Once we have implemented and reflected on the use of Number Sense in Early Years and Year 1, we aim to roll this out across KS1 September 2024.

### Addition and Subtraction Facts

Fluency also means automatic recall of key facts. These are the facts which children should be able to recall at the end of each year group. They will need to explicitly be taught strategies (doubles and near doubles, compensating etc.) to work them out as well as lots of practise in order to achieve automaticity in recall. Children are expected to learn all addition facts relevant to their year group as well as the inverse subtraction facts.

Addition Grid Facts

+	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

Subtraction Grid Facts

-	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

Calculation Strategies

**One More, One Less**

**Two More, Two Less: Think Odds and Evens**

**Number 10 Fact Families**

**Five and A Bit**

**Know About Zero**

**Doubles and Near Doubles**

**Number Neighbours: Spot the Difference**

**7 Tree 9 Square**

**Ten and A Bit**

**Make 10 and Then**

**Adjusting**

**Swap It**

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## Number Sense Maths EYFS

Autumn 1	<table border="1"><tr><td>Book 1 Subitising 1 and 2</td><td>Book 2 Subitising 1 to 3</td></tr></table>	Book 1 Subitising 1 and 2	Book 2 Subitising 1 to 3			
Book 1 Subitising 1 and 2	Book 2 Subitising 1 to 3					
Autumn 2	<table border="1"><tr><td>Book 3 Subitising 1 to 4</td><td>Book 4 Subitising 1 to 5</td></tr></table>	Book 3 Subitising 1 to 4	Book 4 Subitising 1 to 5			
Book 3 Subitising 1 to 4	Book 4 Subitising 1 to 5					
Spring 1	<table border="1"><tr><td>Book 6 Partitioning 2</td><td>Book 7 Partitioning 3</td><td>Book 8 Partitioning 4</td><td>Book 9 Partitioning 5</td><td>Book 5 Subitising 6 to 10</td></tr></table>	Book 6 Partitioning 2	Book 7 Partitioning 3	Book 8 Partitioning 4	Book 9 Partitioning 5	Book 5 Subitising 6 to 10
Book 6 Partitioning 2	Book 7 Partitioning 3	Book 8 Partitioning 4	Book 9 Partitioning 5	Book 5 Subitising 6 to 10		
Spring 2	<table border="1"><tr><td>Book 5 Subitising 6 to 10</td><td>Book 10 Partitioning 10</td></tr></table>	Book 5 Subitising 6 to 10	Book 10 Partitioning 10			
Book 5 Subitising 6 to 10	Book 10 Partitioning 10					
Summer 1	<table border="1"><tr><td>Book 11 Composition of 6 to 9</td><td>Book 12 Comparing quantities to 10</td></tr></table>	Book 11 Composition of 6 to 9	Book 12 Comparing quantities to 10			
Book 11 Composition of 6 to 9	Book 12 Comparing quantities to 10					
Summer 2	<table border="1"><tr><td>Book 13 Patterns in numbers to 10</td></tr></table>	Book 13 Patterns in numbers to 10				
Book 13 Patterns in numbers to 10						

Year 1.

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn 1	Stage 1 Book 1	Stage 1 Book 2	Stage 1 Book 3	Stage 1	Stage 2 Book 1	Stage 2 Book 2	Stage 2 Book 3
	Subitising 1 - 5	Subitising 6 - 10	Subitising on tens frames	Gap teaching and consolidation	Make and Break 5	Make and Break 4, 3 & 2	Make and Break 10
Autumn 2	Stage 2 Book 4	Stage 2 Book 5	Stage 2 Book 6	Stage 2 Book 7	Stage 2	Stage 2	
	Make and Break 6	Make and Break 7	Make and Break 8	Make and Break 9	Gap teaching and consolidation	Gap teaching and consolidation	
Spring 1	Stage 3 Book 1	Stage 3 Book 1	Stage 3 Book 2	Stage 3 Book 2	Stage 3 Book 3	Stage 3 Book 3	
	One More, One Less	One More, One Less	Two More, Two Less	Two More, Two Less	Number 10 Fact Families	Number 10 Fact Families	
Spring 2	Stage 3 Book 4	Stage 3 Book 4	Stage 3 Book 5	Stage 3 Book 6	Stage 3 Book 6	Stage 3	
	Five and A Bit	Five and A Bit	Know About Zero	Doubles and Near Doubles	Doubles and Near Doubles	Gap teaching and consolidation	
Summer 1	Stage 3 Book 7	Stage 3 Book 7	Stage 3 Book 8	Stage 3 Book 9	Stage 3 Book 9	Stage 3 Book 9	
	Number Neighbours	Number Neighbours	7 Tree & 9 Square	Strategy Selection	Strategy Selection	Strategy Selection	
Summer 2	Stage 4 Book 1	Stage 4 Book 1	Stage 4 Book 1	Stages 3&4	Stages 3&4	Stages 3&4	Stages 3&4
	Ten and A Bit	Ten and A Bit	Ten and A Bit	Gap teaching and consolidation	Gap teaching and consolidation	Gap teaching and consolidation	Gap teaching and consolidation

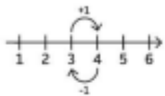

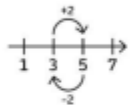
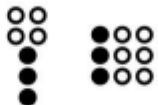
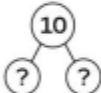
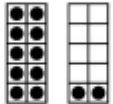

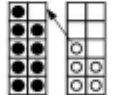

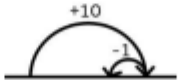

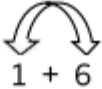
Year 2

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	
Autumn 1	Stage 1 & 2 (review)	Stage 3 Books 1 – 3 (review)	Stage 3 Books 4 – 6 (review)	Stage 3 Books 7 & 8 (review)	Stage 3 Book 9 (review)	Stage 4	Stage 3 Stage 4	
	Subitising and partitioning	-One More, One Less -Two More, Two Less -Number 10 Fact families	-Five and A Bit -Know About Zero -Doubles and Near Doubles	-Number Neighbours -7 Tree 9 Square	Strategy Selection	Ten and A Bit	Gap teaching and consolidation	
Autumn 2	Stage 5	Stage 5	Stage 5	Stage 5	Stage 5	Stage 5		
	Make Ten and Then: Addition	Make Ten and Then: Addition	Make Ten and Then: Addition	Make Ten and Then: Subtraction	Make Ten and Then: Subtraction	Make Ten and Then: Subtraction		
Spring 1	Stage 5	Stage 5	Stage 5	Stage 5	Stage 5	Stage 5		
	More Doubles and Near Doubles	More Doubles and Near Doubles	More Doubles and Near Doubles	Adjusting	Adjusting	Adjusting		
Spring 2	Stage 5	Stage 5	Stage 5	Stage 6	Stage 6	Stage 6		
	Strategy Selection	Strategy Selection	Strategy Selection	Calculating with Multiples of 10	Two-Digit Numbers: Calculating with Ones	Two-Digit Numbers: Calculating with Tens		
Summer 1	Stage 6	Stage 6	Teacher decision on use of sessions over period of KS1 SATs					
	Make the Next Ten and Then	Make the Previous Ten and Then						
Summer 2	Stage 5	Stage 5	Stage 5	Stage 5	Stage 5	Stage 5	Stage 5	
	Stage 6	Stage 6	Stage 6	Stage 6	Stage 6	Stage 6	Stage 6	
	Small group gap teaching and consolidation	Whole class gap teaching and consolidation	Small group gap teaching and consolidation	Whole class gap teaching and consolidation	Small group gap teaching and consolidation	Whole class gap teaching and consolidation	Small group gap teaching and consolidation	

Year 3

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn 1	Stage 5 Book 1 (review)	Stage 5 Book 2 (review)	Stage 5 Book 3 (review)	Stage 5 Book 4 (review)	Stage 5 Book 6	Stage 6 Book 6	Stage 6 Book 7
	Make Ten and Then: Addition	Make Ten and Then: Subtraction	More Doubles and Near Doubles	Adjusting	Make Ten and Then: Subtraction Part 2	Make Ten and Then: Subtraction Part 2	Strategy Selection Part 2
Autumn 2	Stage 6 Books 1 – 3 (review)	Stage 6 Books 3 – 5 (review)	Stage 6 Book 6	Stage 6 Book 6	Stage 6 Book 6	Stage 6 Book 6	
	Calculating with multiples of 10 Calculating with ones Calculating with tens	Calculating with tens Make the next 10 and then Make the previous 10 and then	Strategy Selection	Strategy Selection	Strategy Selection	Strategy Selection	


### NSM Number Facts Calculation Strategies


<p><b>One More, One Less</b></p> 	<p>When we add one, we get the next counting number. When we subtract one, we get the previous counting number (e.g. <math>5 - 1 = 4</math>).</p>	<p><b>Number Neighbours: Spot the Difference</b></p> 	<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. <math>5 - 4 = 1</math>), of adjacent odds (e.g. <math>9 - 7 = 2</math>) or adjacent evens (e.g. <math>6 - 4 = 2</math>)</p>
<p><b>Two More, Two Less: Think Odds and Evens</b></p> 	<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>	<p><b>7 Tree and 9 Square</b></p> 	<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 <math>7 - 3 = 4</math>. Visualising the 9 square helps remember that <math>3 + 6 = 9</math>.</p>
<p><b>Number 10 Fact Families</b></p> 	<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>	<p><b>Ten and A Bit</b></p> 	<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. <math>3 + 10 = 13</math>, <math>17 - 7 = 10</math>, <math>12 - 10 = 2</math>).</p>
<p><b>Five and A Bit</b></p> 	<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. <math>5 + 3 = 8</math>, <math>9 - 5 = 4</math>).</p>	<p><b>Make Ten and Then...</b></p> 	<p>Additions which cross the 10 boundary can be calculated by 'Making Ten' first, and then adding on the remaining amount (e.g. <math>8 + 6</math> can be calculated by thinking '<math>8 + 2 = 10</math> and 4 more makes 14'). The same strategy can be applied to subtractions through 10.</p>
<p><b>Know about 0</b></p> 	<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>	<p><b>Adjust It</b></p> 	<p>Any addition and subtraction can be calculated by adjusting from a fact you know already, (e.g. <math>6 + 9</math> is one less than <math>6 + 10</math>).</p>
<p><b>Doubles and Near Doubles</b></p> 	<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 <math>6 + 6 = 12</math> then <math>6 + 7</math> and <math>5 + 7</math> is easy.</p>	<p><b>Swap It</b></p>  <p style="text-align: center;"><math>1 + 6</math></p>	<p>When the order of two numbers being added (addends) is exchanged the total remains the same. E.g. <math>1 + 8 = 8 + 1</math>. Sometimes reversing the order of the two addends makes addition easier to think about conceptually.</p>


Multiplication and Division Facts

EYFS – Understanding of equal groups

Year 1 - Count forwards and backwards in 2's to 20 , 5's to 50 and 10's to 100

Year 2 –  multiplication and division facts for the 2, 5 and 10 times tables

Year 3 –  multiplication and division facts for the 0, 1, 3, 4 and 8 times tables

Year 4 -  multiplication and division facts for the 6, 7, 8, 11 and 12 times tables

Year 5 & 6 – revision of all multiplication and division facts.

X	0	1	2	3	4	5	6	7	8	9	10	11	12
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10	11	12
2	0	2	4	6	8	10	12	14	16	18	20	22	24
3	0	3	6	9	12	15	18	21	24	27	30	33	36
4	0	4	8	12	16	20	24	28	32	36	40	44	48
5	0	5	10	15	20	25	30	35	40	45	50	55	60
6	0	6	12	18	24	30	36	42	48	54	60	66	72
7	0	7	14	21	28	35	42	49	56	63	70	77	84
8	0	8	16	24	32	40	48	56	64	72	80	88	96
9	0	9	18	27	36	45	54	63	72	81	90	99	108
10	0	10	20	30	40	50	60	70	80	90	100	110	120
11	0	11	22	33	44	55	66	77	88	99	110	121	132
12	0	12	24	36	48	60	72	84	96	108	120	132	144