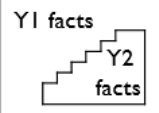# Developing Fluency

For children to be successful mathematicians, it is crucial that they are fluent with number facts. When children are fluent in number facts, their working memory is allowed to focus on conceptual understanding and more complex maths. If children are not fluent in these facts, then when they are solving more complex problems, the working memory is taken up by calculating basic facts, and children have less working memory to focus on solving the actual problem.

In this booklet are the number facts children should be fluent in by the end of Year 4. This means they either just know the number fact or have a very quick strategy to work this out. We are very much encouraging children to calculate instead of counting.

The table below shows addition facts. These will be taught in Key Stage 1 and children are expected to be fluent in them by the end of Year 4.

Legend:
- Adding 1
- Adding 2
- Bonds to 10
- Adding 0
- Adding 10
- Doubles
- Bridging/compensating
- Near doubles
- Y1 facts / Y2 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

Below are the corresponding subtraction facts.

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

By the end of Year 4, children are also expected to be fluent with all times table facts up to 12 x 12. Please see key skills section on the website to see times table targets for specific year groups. Children are also expected to know corresponding division facts.

MULTIPLICATION TABLES

1x

1 x 1 =	1
2 x 1 =	2
3 x 1 =	3
4 x 1 =	4
5 x 1 =	5
6 x 1 =	6
7 x 1 =	7
8 x 1 =	8
9 x 1 =	9
10 x 1 =	10
11 x 1 =	11
12 x 1 =	12

2x

1 x 2 =	2
2 x 2 =	4
3 x 2 =	6
4 x 2 =	8
5 x 2 =	10
6 x 2 =	12
7 x 2 =	14
8 x 2 =	16
9 x 2 =	18
10 x 2 =	20
11 x 2 =	22
12 x 2 =	24

3x

1 x 3 =	3
2 x 3 =	6
3 x 3 =	9
4 x 3 =	12
5 x 3 =	15
6 x 3 =	18
7 x 3 =	21
8 x 3 =	24
9 x 3 =	27
10 x 3 =	30
11 x 3 =	33
12 x 3 =	36

4x

1 x 4 =	4
2 x 4 =	8
3 x 4 =	12
4 x 4 =	16
5 x 4 =	20
6 x 4 =	24
7 x 4 =	28
8 x 4 =	32
9 x 4 =	36
10 x 4 =	40
11 x 4 =	44
12 x 4 =	48

5x

1 x 5 =	5
2 x 5 =	10
3 x 5 =	15
4 x 5 =	20
5 x 5 =	25
6 x 5 =	30
7 x 5 =	35
8 x 5 =	40
9 x 5 =	45
10 x 5 =	50
11 x 5 =	55
12 x 5 =	60

6x

1 x 6 =	6
2 x 6 =	12
3 x 6 =	18
4 x 6 =	24
5 x 6 =	30
6 x 6 =	36
7 x 6 =	42
8 x 6 =	48
9 x 6 =	54
10 x 6 =	60
11 x 6 =	66
12 x 6 =	72

7x

1 x 7 =	7
2 x 7 =	14
3 x 7 =	21
4 x 7 =	28
5 x 7 =	35
6 x 7 =	42
7 x 7 =	49
8 x 7 =	56
9 x 7 =	63
10 x 7 =	70
11 x 7 =	77
12 x 7 =	84

8x

1 x 8 =	8
2 x 8 =	16
3 x 8 =	24
4 x 8 =	32
5 x 8 =	40
6 x 8 =	48
7 x 8 =	56
8 x 8 =	64
9 x 8 =	72
10 x 8 =	80
11 x 8 =	88
12 x 8 =	96

9x

1 x 9 =	9
2 x 9 =	18
3 x 9 =	27
4 x 9 =	36
5 x 9 =	45
6 x 9 =	54
7 x 9 =	63
8 x 9 =	72
9 x 9 =	81
10 x 9 =	90
11 x 9 =	99
12 x 9 =	108

10x

1 x 10 =	10
2 x 10 =	20
3 x 10 =	30
4 x 10 =	40
5 x 10 =	50
6 x 10 =	60
7 x 10 =	70
8 x 10 =	80
9 x 10 =	90
10 x 10 =	100
11 x 10 =	110
12 x 10 =	120

11x

1 x 11 =	11
2 x 11 =	22
3 x 11 =	33
4 x 11 =	44
5 x 11 =	55
6 x 11 =	66
7 x 11 =	77
8 x 11 =	88
9 x 11 =	99
10 x 11 =	110
11 x 11 =	121
12 x 11 =	132

12x

1 x 12 =	12
2 x 12 =	24
3 x 12 =	36
4 x 12 =	48
5 x 12 =	60
6 x 12 =	72
7 x 12 =	84
8 x 12 =	96
9 x 12 =	108
10 x 12 =	120
11 x 12 =	132
12 x 12 =	144

Supporting children to develop their fluency at home would be massively beneficial in developing their mathematics understanding in school. The best way to develop fluency is to have regular short sessions testing children's knowledge of facts. This can be done at anytime, anywhere.