Developing Factual Fluency

Factual fluency progression through the school

How to teach additive facts and multiplicative facts to fluency

What to do for the children they don't stick for*

Factual fluency progression through the school

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

And inverse subtraction facts

Factual fluency progression through the school

Addition table

+	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

Legend

Colour	Meaning	Year
Within 10		Year 1
Ten and a Bit		Year 1
Across 10		Year 2

Subtraction table

-	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

Factual fluency progression through the school

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

And inverse division facts

2 x 2 = 4							
3 x 2 = 6	3 x 3 = 9						
4 x 2 = 8	4 x 3 = 12	4 x 4 = 16					
5 x 2 = 10	5 x 3 = 15	5 x 4 = 20	5 x 5 = 25				
6 x 2 = 12	6 x 3 = 18	6 x 4 = 24	6 x 5 = 30	6 x 6 = 36			
7 x 2 = 14	7 x 3 = 21	7 x 4 = 28	7 x 5 = 35	7 x 6 = 42	7 x 7 = 49		
8 x 2 = 16	8 x 3 = 24	8 x 4 = 32	8 x 5 = 40	8 x 6 = 48	8 x 7 = 56	8 x 8 = 64	
9 x 2 = 18	9 x 3 = 27	9 x 4 = 36	9 x 5 = 45	9 x 6 = 54	9 x 7 = 63	9 x 8 = 72	9 x 9 = 81

2 x 2 = 4							
3 x 2 = 6	3 x 3 = 9						
4 x 2 = 8	4 x 3 = 12	4 x 4 = 16					
5 x 2 = 10	5 x 3 = 15	5 x 4 = 20	5 x 5 = 25				
6 x 2 = 12	6 x 3 = 18	6 x 4 = 24	6 x 5 = 30	6 x 6 = 36			
7 x 2 = 14	7 x 3 = 21	7 x 4 = 28	7 x 5 = 35	7 x 6 = 42	7 x 7 = 49		
8 x 2 = 16	8 x 3 = 24	8 x 4 = 32	8 x 5 = 40	8 x 6 = 48	8 x 7 = 56	8 x 8 = 64	
9 x 2 = 18	9 x 3 = 27	9 x 4 = 36	9 x 5 = 45	9 x 6 = 54	9 x 7 = 63	9 x 8 = 72	9 x 9 = 81

2 times table

8 new facts

8 facts learnt so far out of 36

28 facts to go

2 x 2 = 4							
3 x 2 = 6	3 x 3 = 9						
4 x 2 = 8	4 x 3 = 12	4 x 4 = 16					
5 x 2 = 10	5 x 3 = 15	5 x 4 = 20	5 x 5 = 25				
6 x 2 = 12	6 x 3 = 18	6 x 4 = 24	6 x 5 = 30	6 x 6 = 36			
7 x 2 = 14	7 x 3 = 21	7 x 4 = 28	7 x 5 = 35	7 x 6 = 42	7 x 7 = 49		
8 x 2 = 16	8 x 3 = 24	8 x 4 = 32	8 x 5 = 40	8 x 6 = 48	8 x 7 = 56	8 x 8 = 64	
9 x 2 = 18	9 x 3 = 27	9 x 4 = 36	9 x 5 = 45	9 x 6 = 54	9 x 7 = 63	9 x 8 = 72	9 x 9 = 81

Square times table

7 new facts

15 facts learnt so far out of 36

21 facts to go

2 x 2 = 4							
3 x 2 = 6	3 x 3 = 9						
4 x 2 = 8	4 x 3 = 12	4 x 4 = 16					
5 x 2 = 10	5 x 3 = 15	5 x 4 = 20	5 x 5 = 25				
6 x 2 = 12	6 x 3 = 18	6 x 4 = 24	6 x 5 = 30	6 x 6 = 36			
7 x 2 = 14	7 x 3 = 21	7 x 4 = 28	7 x 5 = 35	7 x 6 = 42	7 x 7 = 49		
8 x 2 = 16	8 x 3 = 24	8 x 4 = 32	8 x 5 = 40	8 x 6 = 48	8 x 7 = 56	8 x 8 = 64	
9 x 2 = 18	9 x 3 = 27	9 x 4 = 36	9 x 5 = 45	9 x 6 = 54	9 x 7 = 63	9 x 8 = 72	9 x 9 = 81

5 times table

6 new facts

21 facts learnt so far out of 36

15 facts to go

2 x 2 = 4							
3 x 2 = 6	3 x 3 = 9						
4 x 2 = 8	4 x 3 = 12	4 x 4 = 16					
5 x 2 = 10	5 x 3 = 15	5 x 4 = 20	5 x 5 = 25				
6 x 2 = 12	6 x 3 = 18	6 x 4 = 24	6 x 5 = 30	6 x 6 = 36			
7 x 2 = 14	7 x 3 = 21	7 x 4 = 28	7 x 5 = 35	7 x 6 = 42	7 x 7 = 49		
8 x 2 = 16	8 x 3 = 24	8 x 4 = 32	8 x 5 = 40	8 x 6 = 48	8 x 7 = 56	8 x 8 = 64	
9 x 2 = 18	9 x 3 = 27	9 x 4 = 36	9 x 5 = 45	9 x 6 = 54	9 x 7 = 63	9 x 8 = 72	9 x 9 = 81

End of Year 3

21 facts learnt so far out of 36

15 facts to go

2 x 2 = 4							
3 x 2 = 6	3 x 3 = 9						
4 x 2 = 8	4 x 3 = 12	4 x 4 = 16					
5 x 2 = 10	5 x 3 = 15	5 x 4 = 20	5 x 5 = 25				
6 x 2 = 12	6 x 3 = 18	6 x 4 = 24	6 x 5 = 30	6 x 6 = 36			
7 x 2 = 14	7 x 3 = 21	7 x 4 = 28	7 x 5 = 35	7 x 6 = 42	7 x 7 = 49		
8 x 2 = 16	8 x 3 = 24	8 x 4 = 32	8 x 5 = 40	8 x 6 = 48	8 x 7 = 56	8 x 8 = 64	
9 x 2 = 18	9 x 3 = 27	9 x 4 = 36	9 x 5 = 45	9 x 6 = 54	9 x 7 = 63	9 x 8 = 72	9 x 9 = 81

3 times table

5 new facts

26 facts learnt so far out of 36

10 facts to go

2 x 2 = 4							
3 x 2 = 6	3 x 3 = 9						
4 x 2 = 8	4 x 3 = 12	4 x 4 = 16					
5 x 2 = 10	5 x 3 = 15	5 x 4 = 20	5 x 5 = 25				
6 x 2 = 12	6 x 3 = 18	6 x 4 = 24	6 x 5 = 30	6 x 6 = 36			
7 x 2 = 14	7 x 3 = 21	7 x 4 = 28	7 x 5 = 35	7 x 6 = 42	7 x 7 = 49		
8 x 2 = 16	8 x 3 = 24	8 x 4 = 32	8 x 5 = 40	8 x 6 = 48	8 x 7 = 56	8 x 8 = 64	
9 x 2 = 18	9 x 3 = 27	9 x 4 = 36	9 x 5 = 45	9 x 6 = 54	9 x 7 = 63	9 x 8 = 72	9 x 9 = 81

4 times table

4 new facts

30 facts learnt so far out of 36

6 facts to go

2 x 2 = 4							
3 x 2 = 6	3 x 3 = 9						
4 x 2 = 8	4 x 3 = 12	4 x 4 = 16					
5 x 2 = 10	5 x 3 = 15	5 x 4 = 20	5 x 5 = 25				
6 x 2 = 12	6 x 3 = 18	6 x 4 = 24	6 x 5 = 30	6 x 6 = 36			
7 x 2 = 14	7 x 3 = 21	7 x 4 = 28	7 x 5 = 35	7 x 6 = 42	7 x 7 = 49		
8 x 2 = 16	8 x 3 = 24	8 x 4 = 32	8 x 5 = 40	8 x 6 = 48	8 x 7 = 56	8 x 8 = 64	
9 x 2 = 18	9 x 3 = 27	9 x 4 = 36	9 x 5 = 45	9 x 6 = 54	9 x 7 = 63	9 x 8 = 72	9 x 9 = 81

6 times table

3 new facts

33 facts learnt so far out of 36

3 facts to go

2 x 2 = 4							
3 x 2 = 6	3 x 3 = 9						
4 x 2 = 8	4 x 3 = 12	4 x 4 = 16					
5 x 2 = 10	5 x 3 = 15	5 x 4 = 20	5 x 5 = 25				
6 x 2 = 12	6 x 3 = 18	6 x 4 = 24	6 x 5 = 30	6 x 6 = 36			
7 x 2 = 14	7 x 3 = 21	7 x 4 = 28	7 x 5 = 35	7 x 6 = 42	7 x 7 = 49		
8 x 2 = 16	8 x 3 = 24	8 x 4 = 32	8 x 5 = 40	8 x 6 = 48	8 x 7 = 56	8 x 8 = 64	
9 x 2 = 18	9 x 3 = 27	9 x 4 = 36	9 x 5 = 45	9 x 6 = 54	9 x 7 = 63	9 x 8 = 72	9 x 9 = 81

7 times table

2 new facts

35 facts learnt so far out of 36

1 fact to go

2 x 2 = 4							
3 x 2 = 6	3 x 3 = 9						
4 x 2 = 8	4 x 3 = 12	4 x 4 = 16					
5 x 2 = 10	5 x 3 = 15	5 x 4 = 20	5 x 5 = 25				
6 x 2 = 12	6 x 3 = 18	6 x 4 = 24	6 x 5 = 30	6 x 6 = 36			
7 x 2 = 14	7 x 3 = 21	7 x 4 = 28	7 x 5 = 35	7 x 6 = 42	7 x 7 = 49		
8 x 2 = 16	8 x 3 = 24	8 x 4 = 32	8 x 5 = 40	8 x 6 = 48	8 x 7 = 56	8 x 8 = 64	
9 x 2 = 18	9 x 3 = 27	9 x 4 = 36	9 x 5 = 45	9 x 6 = 54	9 x 7 = 63	9 x 8 = 72	9 x 9 = 81

8 times table

1 new fact

36 facts learnt so far out of 36

0s fact to go

2 x 2 = 4							
3 x 2 = 6	3 x 3 = 9						
4 x 2 = 8	4 x 3 = 12	4 x 4 = 16					
5 x 2 = 10	5 x 3 = 15	5 x 4 = 20	5 x 5 = 25				
6 x 2 = 12	6 x 3 = 18	6 x 4 = 24	6 x 5 = 30	6 x 6 = 36			
7 x 2 = 14	7 x 3 = 21	7 x 4 = 28	7 x 5 = 35	7 x 6 = 42	7 x 7 = 49		
8 x 2 = 16	8 x 3 = 24	8 x 4 = 32	8 x 5 = 40	8 x 6 = 48	8 x 7 = 56	8 x 8 = 64	
9 x 2 = 18	9 x 3 = 27	9 x 4 = 36	9 x 5 = 45	9 x 6 = 54	9 x 7 = 63	9 x 8 = 72	9 x 9 = 81

9 times table

0 new facts

36 facts learnt so far out of 36

0 facts to go

Factual fluency progression through the school

	Autumn			Spring								Summer			
Year 3				Doubles	2 Times Table		Square Times Table				5 Times Table			Consolidation	
				5 weeks	*5 weeks (8 facts)*		*5 weeks (7 new facts)*				*5 weeks (6 new facts)*			*3-5 weeks* *21 out of 36 facts learnt by end of Year 3*	
Year 4	Recap	3 Times Table	4 Times Table	6 Times Table	7 Times Table	8 TT	9 TT	More squares	10&11 TT	12 Times Table		MTC Prep	MTC	Consolidation	
	3 weeks	*5 weeks (5 new facts)*	*5 weeks (4 new facts)* *30 out of 36 facts learnt by end of Autumn Term*	*3 weeks (3 new facts)*	*3 weeks (2 new facts)*	*2 weeks (1 new fact)*	*2 weeks (0 new facts)* *All 36 facts learnt by mid Spring 2*	*1 wk*	*1 wk* *(Remaining facts needed for MTC learnt)*	*4 weeks*		*3 weeks*	*1 wk*	*3-5 weeks*	
Year 5	Daily consolidation			Weekly consolidation (weekly fluency session and weekly conceptual animation)											
Year 6	Weekly consolidation														

Factual fluency progression through the school

Reception	• Fluency in subitising to 5, and structured arrangements to 10
Year 1	• Addition and subtraction facts within 10
Year 2	• Addition and subtraction facts across 10
Year 3	• Consolidate addition and subtraction facts across 10 during Autumn Term • 2, square and 5 times tables from January
Year 4	• Rest of times tables (plus 11s and 12s lighter touch)
Year 5	• Times tables daily at start of Autumn, reducing to once a week by start of Spring term
Year 6	• Times tables once a week

Factual fluency progression through the school

How to teach multiplicative facts to fluency
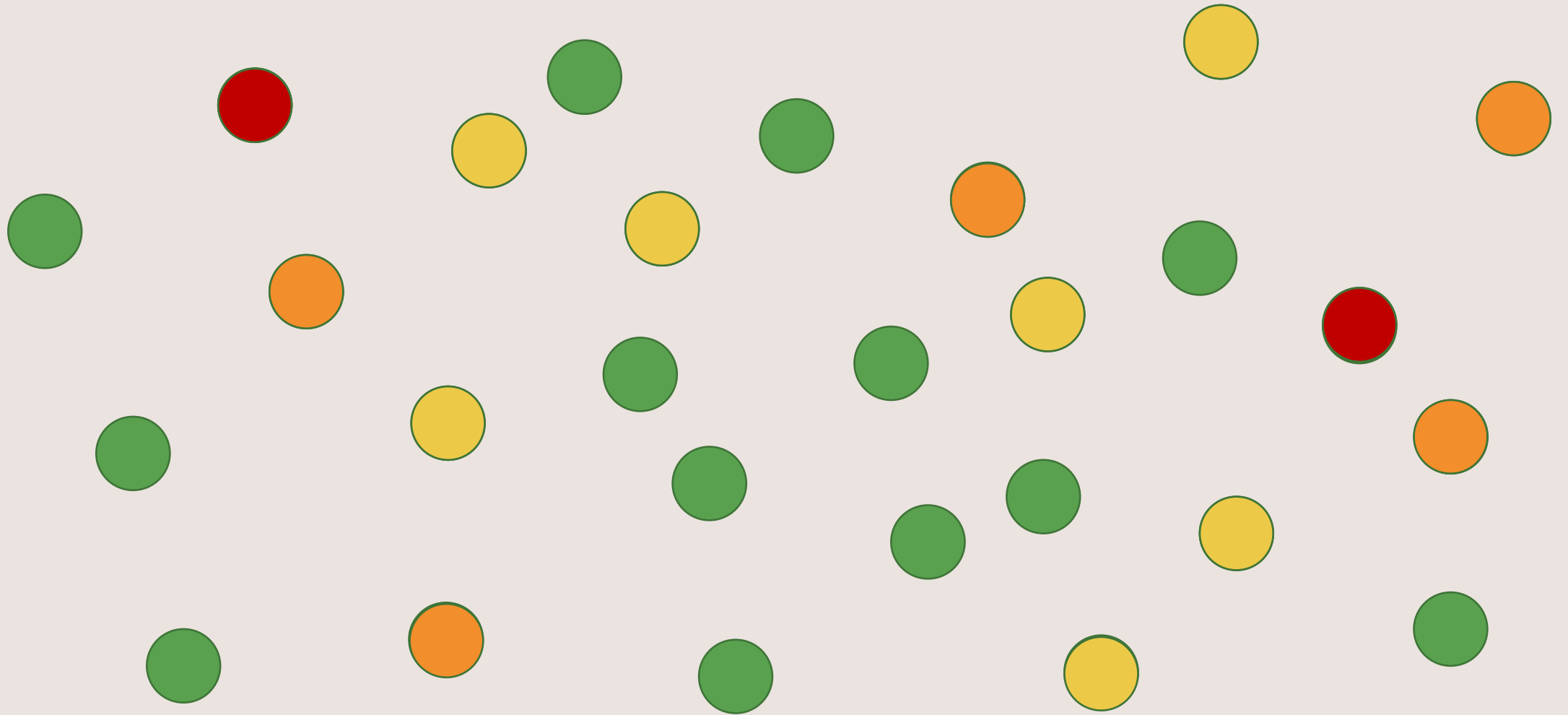
What to do for the children they don't stick for

Factual fluency principles

1. Be explicit about the process to reach fluency

2. Be explicit about the fact set being learnt and where we are on the journey

3. Protected time and consistent routine

4. Introduce new facts in small groups with intensive practice to a high degree of accuracy

5. Regular review of previously learnt facts

6. Track progress carefully (daily for times tables)

7. Intervene immediately

8. Develop a complete belief that all children can become factually fluent

Factual fluency progression through the school

Factual fluency
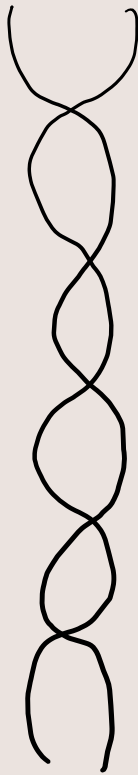
Reasoning about structures and relationships

Factual fluency

Reasoning about structures and relationships
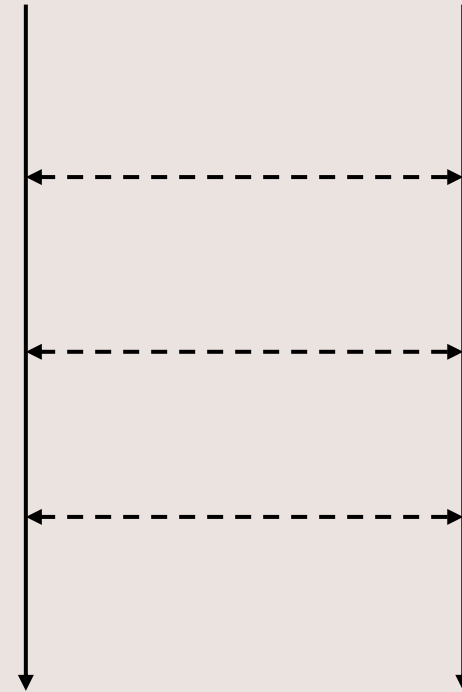
Additive facts

Multiplicative facts

1. Be explicit about the process to reach fluency

- Application of a strategy for additive facts

- <u>Oral rehearsal</u> and <u>retrieval</u> for times tables

1. Be explicit about the process to reach fluency

Addition Grid Facts
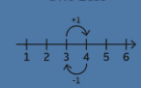
+	0	1	2	3	4	5	6	7	8	9	10
0	0 + 0	0 + 1	0 + 2	0 + 3	0 + 4	0 + 5	0 + 6	0 + 7	0 + 8	0 + 9	0 + 10
1	1 + 0	1 + 1	1 + 2	1 + 3	1 + 4	1 + 5	1 + 6	1 + 7	1 + 8	1 + 9	1 + 10
2	2 + 0	2 + 1	2 + 2	2 + 3	2 + 4	2 + 5	2 + 6	2 + 7	2 + 8	2 + 9	2 + 10
3	3 + 0	3 + 1	3 + 2	3 + 3	3 + 4	3 + 5	3 + 6	3 + 7	3 + 8	3 + 9	3 + 10
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						11 − 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

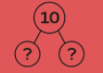## Calculation Strategies

One More, One Less

Swap It — 1 + 6

Two More, Two Less: Think Odds and Evens

Number 10 Fact Families

Five and A Bit

Know About Zero — 0

Doubles and Near Doubles

Number Neighbours: Spot the Difference

7 Tree 9 Square
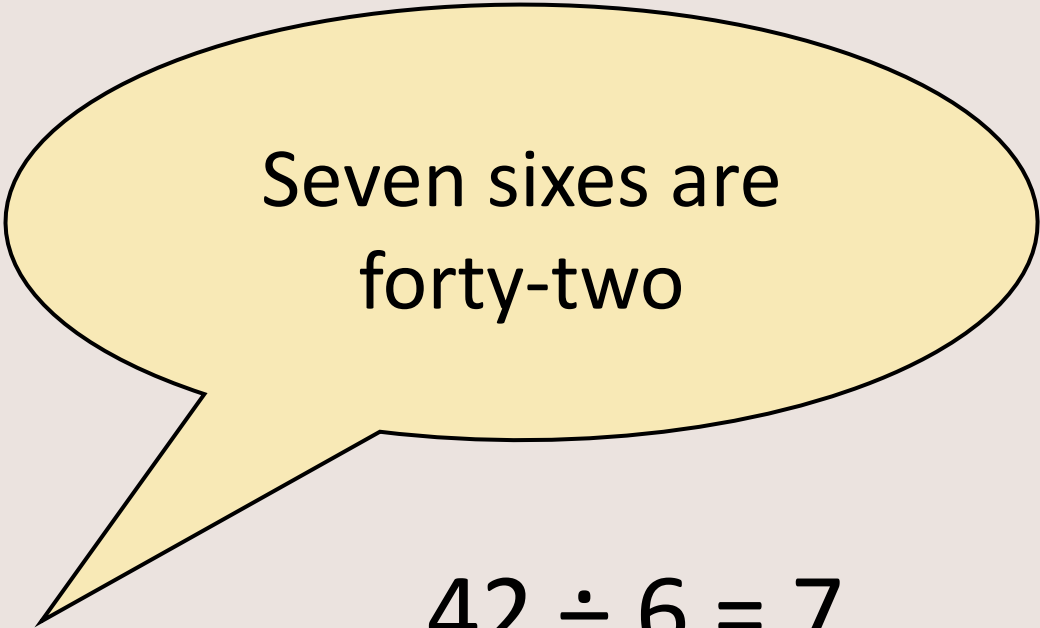
Ten and A Bit

Make 10 and Then

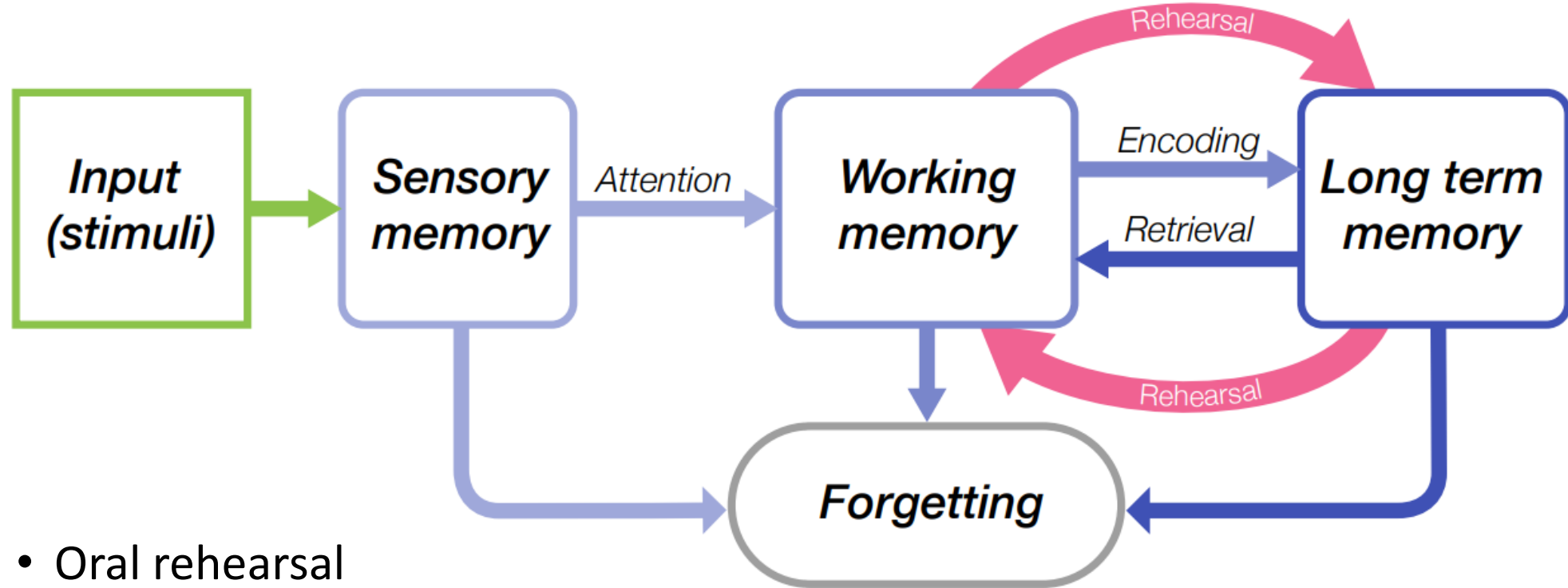Adjusting

Multiplicative facts – verbal repetition

- Oral rehearsal

- Retrieval

My Times Table Practice Booklet

6 Times Tables

Name: _____

Class: _____

New facts in this booklet:

6 x 6 = 36

7 x 6 = 42

8 x 6 = 48

9 x 6 = 54

1		2	
6 x 9 = _____	24 ÷ 3 = _____	6 x 8 = _____	8 x 8 = _____
54 ÷ 6 = _____	4 x 2 = _____	6 x 7 = _____	8 x 3 = _____
7 x 6 = _____	5 x 4 = _____	54 ÷ 6 = _____	4 x 9 = _____
6 x 9 = _____	8 x 5 = _____	7 x 6 = _____	3 x 5 = _____
7 x 6 = _____	28 ÷ 4 = _____	6 x 8 = _____	7 x 5 = _____
8 x 6 = _____	6 x 3 = _____	8 x 6 = _____	16 ÷ 4 = _____
48 ÷ 6 = _____	6 x 6 = _____	7 x 6 = _____	6 x 2 = _____
8 x 6 = _____	2 x 9 = _____	54 ÷ 6 = _____	27 ÷ 3 = _____
9 x 6 = _____	3 x 2 = _____	6 x 7 = _____	9 x 2 = _____
7 x 6 = _____	15 ÷ 5 = _____	6 x 7 = _____	5 x 2 = _____
9 x 6 = _____	3 x 4 = _____	9 x 6 = _____	9 x 9 = _____
6 x 9 = _____	5 x 8 = _____	42 ÷ 6 = _____	8 x 6 = _____
48 ÷ 6 = _____	4 x 6 = _____	6 x 8 = _____	5 x 9 = _____
9 x 6 = _____	4 x 4 = _____	6 x 8 = _____	2 x 6 = _____
6 x 8 = _____	2 x 2 = _____	7 x 6 = _____	5 x 5 = _____
42 ÷ 6 = _____	2 x 5 = _____	48 ÷ 6 = _____	40 ÷ 5 = _____
8 x 6 = _____	6 x 9 = _____	6 x 9 = _____	9 x 9 = _____
9 x 6 = _____	36 ÷ 6 = _____	6 x 8 = _____	4 x 7 = _____
9 x 6 = _____	7 x 7 = _____	6 x 7 = _____	2 x 3 = _____
6 x 7 = _____	7 x 6 = _____	42 ÷ 6 = _____	3 x 3 = _____

7x6, 8x6, 9x6 first column, all facts learnt so far in second column

2. Be explicit about the fact set being learnt and where we are on the journey

Facts we are learning

Facts
we are
learning

5x3=15

5x4=20

6x5=30

7x5=35

8x5=40

9x5=45

Our 36 times tables facts

Our 36 times tables facts
21 facts learnt so far
15 facts to go

2x2=4							
3x2=6	3x3=9						
4x2=8	4x3=12	4x4=16					
5x2=10	5x3=15	5x4=20	5x5=25				
6x2=12	6x3=18	6x4=24	6x5=30	6x6=36			
7x2=14	7x3=21	7x4=28	7x5=35	7x6=42	7x7=49		
8x2=16	8x3=24	8x4=32	8x5=40	8x6=48	8x7=56	8x8=64	
9x2=18	9x3=27	9x4=36	9x5=45	9x6=54	9x7=63	9x8=72	9x9=81

3.   Protected time and consistent routine

3. Protected time and consistent routine

Multiplicative

1) Filling in the booklets

2 minutes

2) Chanting and marking

3 minutes

3) Recording scores

2 minutes

4) Celebrating and identifying facts to learn

3 minutes

1) Filling in the booklets	2) Chanting and marking	3) Recording scores	4) Celebrating and identifying facts to learn
2 minutes	3 minutes	2 minutes	3 minutes

	1		2	
6 x 5 = _____	6 x 6 = _____	6 x 3 = _____	3 x 6 = _____
36 ÷ 6 = _____	24 ÷ 6 = _____	2 x 6 = _____	30 ÷ 6 = _____
4 x 6 = _____	6 x 2 = _____	30 ÷ 5 = _____	4 x 6 = _____
12 ÷ 6 = _____	6 x 4 = _____	6 x 2 = _____	36 ÷ 6 = _____
6 x 2 = _____	4 x 6 = _____	6 x 2 = _____	5 x 6 = _____
6 x 3 = _____	30 ÷ 5 = _____	5 x 6 = _____	2 x 6 = _____
5 x 6 = _____	2 x 6 = _____	6 x 5 = _____	6 x 5 = _____
4 x 6 = _____	6 x 5 = _____	12 ÷ 2 = _____	6 x 6 = _____
3 x 6 = _____	6 x 6 = _____	4 x 6 = _____	18 ÷ 3 = _____
18 ÷ 3 = _____	2 x 6 = _____	4 x 6 = _____	4 x 6 = _____
30 ÷ 6 = _____	6 x 5 = _____	3 x 6 = _____	6 x 2 = _____
6 x 4 = _____	6 x 5 = _____	24 ÷ 6 = _____	6 x 2 = _____
6 x 4 = _____	12 ÷ 2 = _____	3 x 6 = _____	6 x 6 = _____
6 x 3 = _____	5 x 6 = _____	2 x 6 = _____	6 x 4 = _____
6 x 3 = _____	5 x 6 = _____	6 x 3 = _____	12 ÷ 6 = _____
3 x 6 = _____	18 ÷ 6 = _____	6 x 5 = _____	6 x 6 = _____
2 x 6 = _____	6 x 5 = _____	5 x 6 = _____	6 x 4 = _____
24 ÷ 4 = _____	6 x 6 = _____	18 ÷ 6 = _____	24 ÷ 4 = _____
4 x 6 = _____	6 x 2 = _____	6 x 4 = _____	6 x 3 = _____
6 x 6 = _____	3 x 6 = _____	5 x 6 = _____	2 x 6 = _____

First part of 6 times table

6 x 5 = 30

6 x 6 = 36

18 ÷ 3 = 6

4 x 6 = 24

6 x 2 = 12

End of unit animations

Groupitising

Is this a multiple of 3?

Cumulative groupitising

Factor families

Multiple Venn

Factor Venn

Times by a teen

Hundred square

4. Introduce new facts in small groups with intensive practice to a high degree of accuracy

- Times table groups for multiplicative facts

- Strategy groups for additive facts

2 x 2 = 4

3 x 2 = 6   3 x 3 = 9

4 x 2 = 8   4 x 3 = 12   4 x 4 = 16

5 x 2 = 10   5 x 3 = 15   5 x 4 = 20   5 x 5 = 25

6 x 2 = 12   6 x 3 = 18   6 x 4 = 24   6 x 5 = 30   6 x 6 = 36

7 x 2 = 14   7 x 3 = 21   7 x 4 = 28   7 x 5 = 35   7 x 6 = 42   7 x 7 = 49

8 x 2 = 16   8 x 3 = 24   8 x 4 = 32   8 x 5 = 40   8 x 6 = 48   8 x 7 = 56   8 x 8 = 64

9 x 2 = 18   9 x 3 = 27   9 x 4 = 36   9 x 5 = 45   9 x 6 = 54   9 x 7 = 63   9 x 8 = 72   9 x 9 = 81

6 times table

3 new facts

33 facts learnt so far out of 36

3 facts to go

4. Introduce new facts in small groups with intensive practice to a high degree of accuracy

1	
6 x 9 = _____	24 ÷ 3 = _____
54 ÷ 6 = _____	4 x 2 = _____
7 x 6 = _____	5 x 4 = _____
6 x 9 = _____	8 x 5 = _____
7 x 6 = _____	28 ÷ 4 = _____
8 x 6 = _____	6 x 3 = _____
48 ÷ 6 = _____	6 x 6 = _____
8 x 6 = _____	2 x 9 = _____
9 x 6 = _____	3 x 2 = _____
7 x 6 = _____	15 ÷ 5 = _____
9 x 6 = _____	3 x 4 = _____
6 x 9 = _____	5 x 8 = _____
48 ÷ 6 = _____	4 x 6 = _____
9 x 6 = _____	4 x 4 = _____
6 x 8 = _____	2 x 2 = _____
42 ÷ 6 = _____	2 x 5 = _____
8 x 6 = _____	6 x 9 = _____
9 x 6 = _____	36 ÷ 6 = _____
9 x 6 = _____	7 x 7 = _____
6 x 7 = _____	7 x 6 = _____

- 2 minutes per practice sheet

- Work through in order. Don't miss any out

- When there is a fact they don't know yet, copy from the display

5. Regular review of previously learnt facts

Booklet progression – 22 practice sheets

1
2   **1ˢᵗ column: First part of the new times table**
3   **2ⁿᵈ column: All facts learnt so far**
4

5
6   **1ˢᵗ column: Second part of the new times table**
7   **2ⁿᵈ column: All facts learnt so far**
8

9
10   **1ˢᵗ column: The whole of the new times table**
11   **2ⁿᵈ column: All facts learnt so far**
12

13
14
15
16
17
       The new times table mixed with previously learnt times tables
18
19
20
21
22

6.   Track progress carefully

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
24	30	24	31	26	35	30	24	31	30	33	32	31	28	28	34	23	31			37	39
35	40	39	40	40	39	31		34			32	26	27	39	39	40	39	40	39	39	40
			10	21	25	14	29	30	25	21	19	34	18		27	14	21	28	32	36	
19	29	31	31	28	28	19	14	17	20	19	7	17	23	28	19		35	25	26	33	32
40	39	40	40	40	40	40	38	40	39	39	40	40	39	39	40	39	40	40	39	40	40
40	40	40	40	40	40	38	34	39	40	40	40	40	37	37	40	40	40	40	40	40	40
33	40	40	40	40	40	25	28	32	32	38	34	36	39	35		38	40	40	40	36	40
40	40	40	40	39	40	40	40	40	40	40	40	40	39		40	40	40	40	40	40	40
27	23	28	38	32	32	28	28	25	30	33	31	33	31		34	30	35	32	36	39	38
40	40	40	40			24	30	38	40	40	39	37	30	39	40	40	39	40	40	40	40
38	40	40	40	40	40	37	33	40	36	40	31	35	38	40	40	38	40	38	40	40	40
40	40	40	40	40		40	32	38	40	39	40	40	40	38	40	40	40	40	40	39	40
40	40	39	40	39	40	37	39	38	40	37	34	40	39	38	38	38	37	40	39	40	40
40	40	40	40	39	40	40	40	39	39				39	39				37		40	40
30	27	30	31	33	33	16	27	28	19	29	27	17	32	30	25	29	40	29	40	39	38
40	40	40	39	40	40	40	40	40	39	40	39	40	40	40	40	40	39	40	39	40	40
28	35	38	40	36	40	26	28	33	36	39	33	40	30	40	39	34	39	39	40	37	40
40	40	40	40	40	40	40	40	40	40	40	40	40	39	40	40	40	40	40	40	40	40
39	40	40	40	40	40	21	24	31	33	33	37	38	35	40	34	38	40	37	40	37	38
39	40	40	40	40	40	22	22	35	28	36	27	32	38	40	40	39	40	39	40	40	40
28	25	31	33	31	31	29	29	32	32	35	35	37	35	35	35	37	40			40	40
38	40	40	40		38	27	17	32	40	40	27	32	40	39	33	40	40	40	40	40	39
30	38	40	40	40	40	40	29	37	36	37	33	33	34	36	36	33	37	33	39	39	40
21	29	30	40	32	40	20	24	33	26	32	34	32	38	37	37	40	40	38	40	38	40
35	30	40	39	27	39	39	26	33	37	32	32	25	36	34	39	34	40	40	34	40	38
39	36	39	39	40	40	21	19	28	30	36	29	21	34	39	38	40	35	39	40	39	40
40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
2x							14	12	15	27		23	36	40	29	40	40	40	40	5x30	40

Name ____Jack Jones____ Class ___1A___ Date ___14/11 26/04___

Addition Facts observed

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

Strategies observed

✓ Some evidence

✓ Secure

D but no ND

One More, One Less ✓	Two More, Two Less: Think Odds and Evens ✓	Number 10 fact families ✓	Five and A Bit ✓
+1 / 1 2 3 4 5 6 / -1	+2 / 1 3 5 7 / -2	10 / ? ?	

Doubles and near doubles ✓	7 tree 9 square ✓	Know about zero ✓	Swap it ✓
		0	1 + 6

Observation Notes

Know about zero fully secure for +
Doesn't recognise 3 + 7 and 4 + 6 and was adding to 10 (but can say '7' when asked what bonds to 10 from 3)
Can recognise commutativity in 0 + 3 etc, but not e.g. 1 + 4. Counted on from 1 to get 5.
Great progress!
- 1 more and 2 more solid
- Recognises all bonds to 10 and doubles
- Can apply commutativity now, except didn't recognise 3 + 5 and 4 + 5 as five and a bit (though fine for 5 + 3 and 5 + 4)

Follow-up plan

Note – this should focus only on strategies that have been taught but not applied. No need to focus on strategies not taught yet.

Gap teach – commutativity for 1 more e.g. 1 + 4
Gap teach – recognise addition pairs which make 10 when presented among facts which don't add to 10.
Gap teach – near doubles
Gap teach – five and a bit – applying to 3 + 5 and 4 + 5

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
24	30	24	31	26	35	30	24	31	30	33	32	31	28	28	34	23	31			37	39
35	40	39	40	40	39	31		34			32	26	27	39	39	40	39	40	39	39	40
				10	21	25	14	29	30	25	21	19	34	18		27	14	21	28	32	36
19	29	31	31	28	28	19	14	17	20	19	7	17	23	28	19		35	25	26	33	32
40	39	40	40	40	40	40	38	40	39	39	40	40	39	39	40	39	40	40	39	40	40
40	40	40	40	40	40	38	34	39	40	40	40	40	37	37	40	40	40	40	40	40	40
33	40	40	40	40	40	25	28	32	32	38	34	36	39	35		38	40	40	40	36	40
40	40	40	40	39	40	40	40	40	40	40	40	40	39		40	40	40	40	40	40	40
27	23	28	38	32	32	28	28	25	30	33	31	33	31		34	30	35	32	36	39	38
40	40	40	40			24	30	38	40	40	39	37	30	39	40	40	39	40	40	40	40
38	40	40	40	40	40	37	33	40	36	40	31	35	38	40	40	38	40	38	40	40	40
40	40	40	40	40		40	32	38	40	39	40	40	40	38	40	40	40	40	40	39	40
40	40	39	40	39	40	37	39	38	40	37	34	40	39	38	38	38	37	40	39	40	40
40	40	40	40	39	40	40	40	39	39				39	39				37		40	40
30	27	30	31	33	33	16	27	28	19	29	27	17	32	30	25	29	40	29	40	39	38
40	40	40	39	40	40	40	40	40	39	40	39	40	40	40	40	40	39	40	39	40	40
28	35	38	40	36	40	26	28	33	36	39	33	40	30	40	39	34	39	39	40	37	40
40	40	40	40	40	40	40	40	40	40	40	40	40	39	40	40	40	40	40	40	40	40
39	40	40	40	40	40	21	24	31	33	33	37	38	35	40	34	38	40	37	40	37	38
39	40	40	40	40	40	22	22	35	28	36	27	32	38	40	40	39	40	39	40	40	40
28	25	31	33	31	31	29	29	32	32	35	35	37	35	35	35	37	40			40	40
38	40	40	40		38	27	17	32	40	40	27	32	40	39	33	40	40	40	40	40	39
30	38	40	40	40	40	40	29	37	36	37	33	33	34	36	36	33	37	33	39	39	40
21	29	30	40	32	40	20	24	33	26	32	34	32	38	37	37	40	40	38	40	38	40
35	30	40	39	27	39	39	26	33	37	32	32	25	36	34	39	34	40	40	34	40	38
39	36	39	39	40	40	21	19	28	30	36	29	21	34	39	38	40	35	39	40	39	40
40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
2x							14	12	15	27		23	36	40	29	40	40	40	40	40 5x30	40

7. Intervene immediately

- Observing children during the daily fluency sessions (parts 1 and 2)

- Children's scores from within the daily fluency sessions (part 3)

7. Intervene immediately

1) Filling in the booklets
2 minutes

2) Chanting and marking
3 minutes

3) Recording scores
2 minutes

4) Celebrating and identifying facts to learn
3 minutes

Are they either writing or looking up to copy a fact?

Are they saying the fact under their breath (might they need to?)

Is there anyone looking around the classroom waiting for a fact to pop into their head?

Is there anyone looking stressed?

Is there anyone copying every fact straight away 'by default'?

Is anyone not saying the facts at all?

Is anyone mumbling the facts?

Is there anyone who has stopped saying the facts once they have marked the ones they have done?

Are they marking the facts correctly (not AS important as the others but scan for this)

Can children explain why chanting is important as part of learning?

How does each child's score compare to the previous few sessions?

- Who needs a celebration?

- Who needs a prompt?

- Who needs encouragement?

Is there anyone looking uncomfortable who doesn't want to share today?

Who is keen to share?

Is there anyone who should be celebrating who hasn't volunteered?

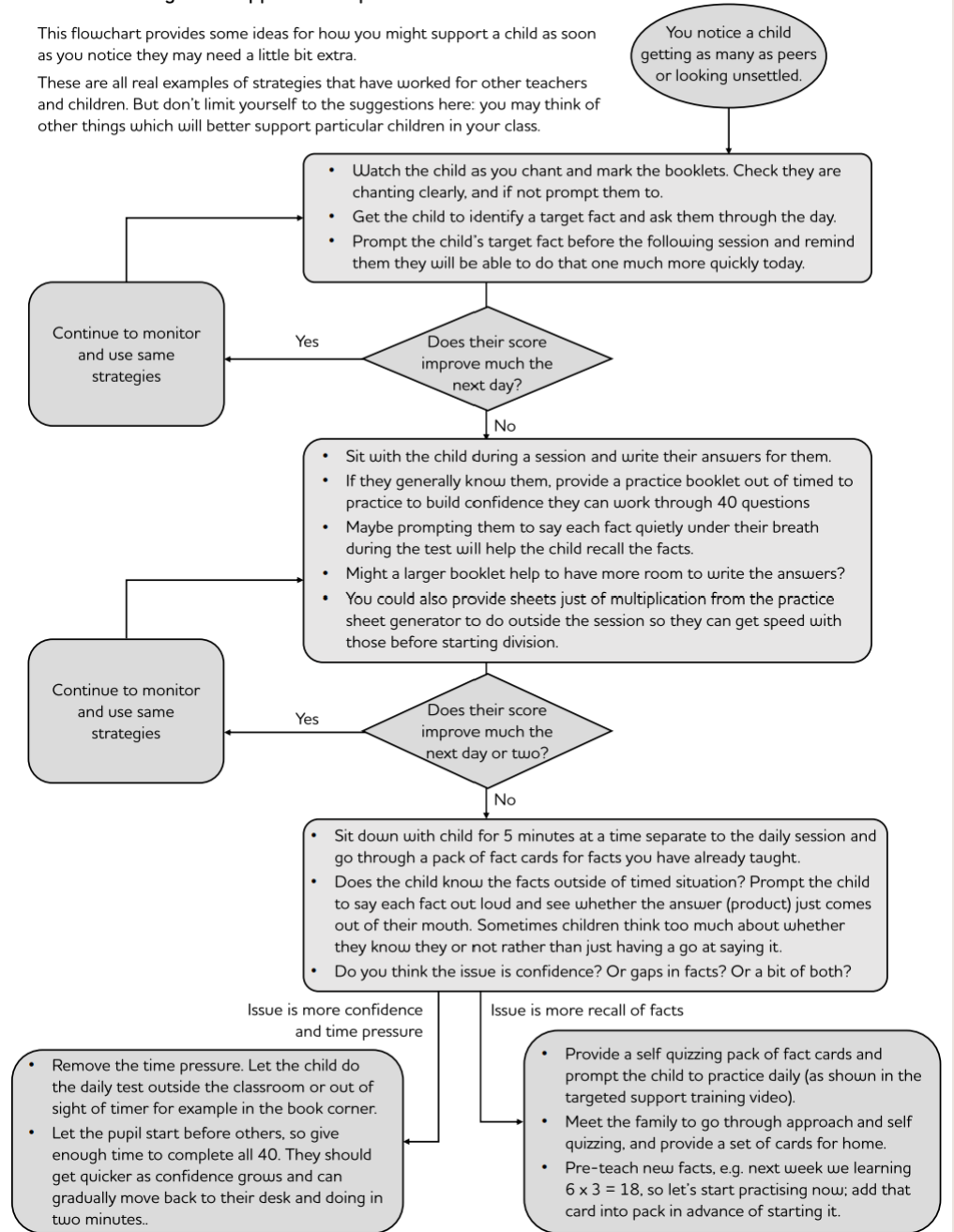Who is it appropriate to set a target fact for?

- Whole class? (near start of booklet with new facts)

- Individuals

7.   Intervene immediately

Targeted Support Prompt Sheet

This flowchart provides some ideas for how you might support a child as soon as you notice they may need a little bit extra.

These are all real examples of strategies that have worked for other teachers and children. But don't limit yourself to the suggestions here: you may think of other things which will better support particular children in your class.

You notice a child getting as many as peers or looking unsettled.

- Watch the child as you chant and mark the booklets. Check they are chanting clearly, and if not prompt them to.
- Get the child to identify a target fact and ask them through the day.
- Prompt the child's target fact before the following session and remind them they will be able to do that one much more quickly today.

Does their score improve much the next day?

Yes → **Continue to monitor and use same strategies**

No →

- Sit with the child during a session and write their answers for them.
- If they generally know them, provide a practice booklet out of timed to practice to build confidence they can work through 40 questions
- Maybe prompting them to say each fact quietly under their breath during the test will help the child recall the facts.
- Might a larger booklet help to have more room to write the answers?
- You could also provide sheets just of multiplication from the practice sheet generator to do outside the session so they can get speed with those before starting division.

Does their score improve much the next day or two?

Yes → **Continue to monitor and use same strategies**

No →

- Sit down with child for 5 minutes at a time separate to the daily session and go through a pack of fact cards for facts you have already taught.
- Does the child know the facts outside of timed situation? Prompt the child to say each fact out loud and see whether the answer (product) just comes out of their mouth. Sometimes children think too much about whether they know they or not rather than just having a go at saying it.
- Do you think the issue is confidence? Or gaps in facts? Or a bit of both?

Issue is more confidence and time pressure

- Remove the time pressure. Let the child do the daily test outside the classroom or out of sight of timer for example in the book corner.
- Let the pupil start before others, so give enough time to complete all 40. They should get quicker as confidence grows and can gradually move back to their desk and doing in two minutes..

Issue is more recall of facts

- Provide a self quizzing pack of fact cards and prompt the child to practice daily (as shown in the targeted support training video).
- Meet the family to go through approach and self quizzing, and provide a set of cards for home.
- Pre-teach new facts, e.g. next week we learning 6 x 3 = 18, so let's start practising now; add that card into pack in advance of starting it.

8. Develop a complete belief that all children can become factually fluent

Factual fluency progression through the school

How to teach additive facts and multiplicative facts to fluency

What to do for the children they don't stick for

Targeted support: Factual fluency

Name ~~████~~   My Times Table Progress Sheet

Week	Date	Number of facts I know (out of 36)	Number of facts still to learn (out of 36)	Fact I will learn this week	Week	Date	Number of facts I know (out of 36)	Number of facts still to learn (out of 36)	Fact I will learn this week
1	11m Oct	16	20	6×6=36	9	13th... 2021	28	8	9×3= 7×5=35
2	2nd Nov	21	14	9×8=72	10	10m Jan	29	7	7×7=49
3	8th Nov	22	14	8×7=56	11	17.Jan 2022	30	6	9×4=36
4	12th Nov	23	13	8×4=32	12	24 Jan 2022	32	4	8×3=24
5	15th Nov	24	12	8×8=64	13	Jan 2022	34	2	9×4=36 + 8×3=24
6	17th Nov	25	11	9×5=45	14	7 feb 2022	34	2	9×4=36 8×3=24
7	18th Nov	28	11	9×7=43	15	14 Feb	35	1	9×7=63
8	29th Nov	26	9	9×9=81	16				

9 7/2

Factual fluency principles

1. Be explicit about the process to reach fluency

2. Be explicit about the fact set being learnt and where we are on the journey

3. Protected time and consistent routine

4. Introduce new facts in small groups with intensive practice to a high degree of accuracy

5. Regular review of previously learnt facts

6. Track progress carefully (daily for times tables)

7. Intervene immediately

8. Develop a complete belief that all children can become factually fluent

Any Questions