Mathematical fluency progression

Grid shows KS1 number bonds that need to be secure – practised throughout school.

Adding 1 and 2 | Bonds to 10 | Adding 10 | Bridging/ compensating | Y1 facts | Y2 facts

Doubles | Adding 0 | Near doubles

+	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

Year 1
Rapid recall
Y1 facts on grid – including associated subtraction facts
Mental strategies
+ 0 + 1 and + 2 (and –) to any number up to 20 (Just 0, 1, or 2 more/less)
+/- 10 to any 1-digit number including zero:10 + 7 = 17
Notice **Number bonds** to 10
Doubling and halving: double facts and halves to 5 + 5 (and 10 + 10)
Near number bonds to add two one-digit numbers: "7 + 2 = 9 because 7 + 3 = 10 so it's just one less" or "8 + 3 must be 11 because 8 + 2 = 10"
Near double facts e.g. "3 + 4 = 7 because double 3 is 6 so it's just one more".
Partitioning: Use number facts to add TO + O: "24 + 3… I know that 3 + 4 = 7 so 20 + 7 = 27"
Adjusting: 'make ten' supported by models and images e.g., 8 + 6 = 8 + 2 + 4

Year 2
Rapid recall
Y1 and 2 facts on grid – including associated subtraction facts
2-, 5- and 10-times table multiplication and division facts
Mental strategies
Number bonds to 10 and **near number bonds** to add two or three single digit numbers
Spot **doubles** and **near doubles** to add two or three single digit numbers
Use **number bonds** to 20 and near number bonds to 20 to add 2 numbers
+ 10 to any 2-digit number (support with models, images and hundred square)
Partitioning: Calculations with whole numbers which do not involve crossing place value boundaries- e.g., 23 + 45= 40 + 5 +20 + 3 or 40 + 23 + 5
Counting on or back in tens and ones to add or subtract – flexibility with number line
Adjusting +/- 9 and 11 by adding 10 then subtracting or adding 1
Adjusting: 'make ten' supported by models and images e.g., 8 + 6 = 8 + 2 + 4
+/- multiples of 10 where the answer is between 0 and 100 (e.g., 70 + 30 = 100, 20 + 40 = 60)
Doubling and halving: Derives doubles and halves of multiples of 10 up to 100
Doubling and halving: Find the doubles to 100 using partitioning and halves of any even number to 100

Year 3
Rapid recall
3-, 4- and 8-times table and associated division facts
Multiply 2-digit number by 10
+/- multiples of 10 where the answer is between 0 and 100 (e.g., 70 + 30 = 100, 20 + 40 = 60)
Doubles and halves of multiples of 10 up to 100
Mental strategies
Counting on or back in fives from any multiple of 5 e.g., 35+15=? by counting on in steps of 5 from 35
Counting on or back in hundreds from any number e.g., 570 + 300=? by counting on in hundreds from 570
Partitioning: Calculations with whole numbers which involves crossing place value boundaries e.g., 42 – 28=? by 42 – 2 – 20 - 6
Adjusting multiples of 10 e.g., 38 + 68=? by 38 + 70 – 2 or 45 – 29 = 45 – 30 + 1
Adjusting: 'make ten' progressing to multiples of ten e.g., 28 + 13 = 30 + 11
Near doubles to numbers under 20 e.g., 18 + 16 is double 18 and subtract 2 or double 16 and add 2
Near doubles to multiples of 10 e.g., 60 + 70 is double 60 and add 10 or double 70 and subtract 10
Doubling and halving: Find the doubles and halves of any two-digit number and any multiple of 10 or 100– e.g. half 680 or double 73
Doubling and halving: Multiply and divide by 4 by doubling/halving twice and 8 by doubling/halving again. – e.g. 34 x 4 = 34 x 2 x 2.

Year 4
Rapid recall
All multiplication and division facts up to 12 x 12
+/- multiples of 10 beyond 100 e.g. 50 + 60 = 110
+ or – multiples of 100 up to 1000
Half of any even number to 100
Multiply and 2- or 3-digit number by ten
Mental strategies
Counting on or back in tenths and/or hundredths- e.g., 3.2 + 0.6 =? by counting on in tenths. 1.7 + 0.55=? by counting on in tenths and hundredths – flexibility with a number line
Adjusting multiples of 10 or 100 e.g., 138 + 69=? by 138 + 70 – 1 or 299 – 48 = 300 – 48 – 1
Adjusting 'make ten' progressing to 3-digit numbers e.g., 128 + 32 = 130 + 30
Partitioning: Calculations with decimal numbers not crossing place value boundaries then crossing boundaries. E.g., 3.2 + 2.1 progressing to 3.7 + 6.8
Near doubles to 100 e.g., 75 + 76 is double 76 and subtract 1 or double 75 and add 1.
Doubling and halving: Find the doubles and halves of any number up to 1,000 by partitioning

Year 5
Rapid recall
+/- multiples of 1000
Multiply and divide any number by 10 and 100
Halves of any number to 100 (e.g., half of 22 = 11, half of 51 = 25.5)
Squares of all numbers up to 12
Cubes of 2, 3, 4 and 5
Mental strategies
Adjusting multiples with decimals e.g., 2 ½ + 1 ¾ by 2½ + 2 – ¼ or 5.7 + 3.9 by 5.7 + 4.0 – 0.1
Decimal **near doubles** to whole numbers e.g., 2.5 + 2.6 is double 2.5 add 0.1 or double 2.6 subtract 0.1.
Doubling and halving: Find the doubles and halves of any number up to 10,000 by partitioning – e.g., half of 32,202 by halving 3,000, 2000, 200 and 2
Doubling and halving: Multiply by 50 by multiplying by 100 and halving e.g., 8 x 50= 8 x 100 divided by 2
Doubling and halving: Double and half decimal number with up to one decimal place by portioning – e.g., half of 8.4 by halving 8 and halving 0.4

Year 6
Rapid recall
Multiplication of multiples of 10 and 100 based on known facts (e.g., 40 x 40 = 1,600);
Mental strategies
Adjusting multiples with decimals e.g., 2 ½ + 1 ¾ by 2½ + 2 – ¼ or 5.7 + 3.9 by 5.7 + 4.0 – 0.1
Decimal **near doubles** to whole numbers e.g., 2.5 + 2.6 is double 2.5 add 0.1 or double 2.6 subtract 0.1.
Doubling and halving: Find the doubles and halves of any number up to 10,000 by partitioning – e.g., half of 32,202 by halving 3,000, 2000, 200 and 2
Doubling and halving: Multiply by 50 by multiplying by 100 and halving e.g., 8 x 50= 8 x 100 divided by 2
Doubling and halving: Double and half decimal number with up to one decimal place by portioning – e.g., half of 8.4 by halving 8 and halving 0.4