Mental Maths Skills
Whole School Progression

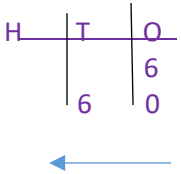
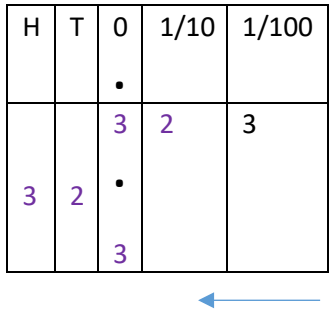
Skill	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Number bonds Example Method	Bonds to 10 and 20 6+4 16+4	Bonds to 100 90 + 10 60 + ? = 100 52 + ? = 60 Add 3 1 digit numbers identifying number bond to 10 6 + 2 + 4 = 12 6 + 4 = 10 + 2 = 12	Pairs of numbers that total 100 using knowledge of number bonds 32 + 68 = 32 + ? = 100	Pairs of numbers that add together to make the next multiple of 100. 520 + ? = 600 520 + 80 = 600 Decimal bonds to 1. 0.7 + 0.3 = 1 0.7 + ? = 1	Decimal bonds. 7.2 + 0.8 = 8 7.2 + ? = 8 What must be added to a decimal with units and tenths to make the next whole number?	Decimal bonds. 7.26 + ? = 8 0.26 + **0.74** = 1 What must be added to a decimal with units, tenths and hundredths to make the next whole number?
Adding/subtracting multiples of 10	Add and subtract 10 to/from a single digit number 7 + 10 = 17 17 – 10 = 7	Add and subtract a multiple of 10 from any 2 digit number *Including bridging through 100* 32 + 20 65 – 30	Add and subtract a multiple of 10 from any 3 digit number *including bridging through 100s* 324 + 40 324 – 40	Add and subtract a multiple of 10 from any 4 digit number *including bridging through a 100/1000* 3423 + 50 3235 – 50	Add tenths to any decimal number *up to 1 decimal place* 0.1 + 0.5 = 0.6 25.3 + 0.5 = 25.8	Add tenths and hundredths to any decimal number *up to 2 decimal places* 25.34 + 0.5 16.15 + 0.04

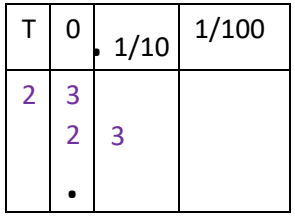
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Adding through 'adjusting'	Add 9 and 11 to a single digit number by adding 10 then subtracting 1. 8 + 9 = 17 8 + 11 = 19	Add and subtract 9, 19, 11 and 21 to/from any 2 digit number. 12 + 9 = 21 34 – 11 = 23 42 + 19 = 61	Add and subtract any 2 digit number to another 2 digit number ending in 8,9,1 or 2. **39** + 26 = 39 + 1 = 40 + 26 = 66 – 1 = 65 **21** + 34 = 21 – 1 = 20 + 34 = 54 + 1 = 55	Add and subtract any 2 digit number to another 3 digit number ending in 8,9,1 or 2. 283 – 71 283 – 70 = 213 + 1 = 214	Add and subtract the nearest multiple of 10 or 100 then adjust 583 – 71 583 – 70 = 513 - 1 = 512 526 + 69 526 + 70 = 596 – 1 = 598	897 + 2000 = 2897 + 2 = 2899

Missing numbers using the inverse (Number block)	Solve simple missing numbers (1 digit numbers) by counting on. ? – 9 = 7 7 = ? – 9 5 + ? = 11	Use the inverse to check/solve missing numbers (within 2 digits). ? – 14 = 28 28 + 14 = **42** 13 + ? = 47 47 – 13 = **34**	Use the inverse to check/solve missing number problems (within 3 digits). ? – 123 = 150 150 + 123 = **273** 145 + ? = 300 300 – 145 = **165**	Use the inverse to check/solve missing number problems (within 4 digits). ? – 3456 = 1300 3456 + 1300= **4756** 2340 + ____=5678 5678 – 2340= **3338**	Use the inverse to check/solve missing number problems (decimals-units and tenths) ? – 2.7 = 3 3 + 2..7 = **5.7** 7.8 + ____ = 8 8 – 7.8 = **0.2**	Use the inverse to check/solve missing number problems (decimals-units and tenths and hundredths) ? – 7.26 = 0.74 7.26 + 0.74= **8** 3.65 + ___=6.01 6.01 – 3.65 = **2.36**

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X by 10, 100, 1000	Times 1 digit numbers by 10. 6 x 10 = 60 10 x 4 = 40	Times by 10 (within 10x12). Understand that numbers get 10x bigger. 6 x 10 = 60 10 x 11 = 110 	Times by 10 and 100 within 3 digits. Understand that numbers get 10x/100x bigger. 23 x 10 = 230 10 x 40 = 400	Times decimals with 2dp by 10 and 100. Understand value of tenths and hundredths. 3.23m x 100=323cm 	Times decimals with 3dp by 10 and 100. Understand value of tenths, hundredths and thousandths. Refer to PV chart	Consolidation: Times decimals with 3dp by 10, 100 and 1000. Understand value of tenths, hundredths and thousandths. Refer to PV chart

÷ by 10, 100, 1000	Divide a 2-digit number by 10. 70 ÷ 10 = 7 50 ÷ 10 = 5	Divide by 10 (within 10 x 12). Understand that numbers get 10x smaller. 70 ÷ 10 = 7 120 ÷ 10 = 12 	Divide by 10 and 100 within 3 digits. Understand that numbers get 10x/100x smaller. 230 ÷ 10 = 23 170 ÷ 10 = 17	Divide 1 or 2 digits by 10 and 100 Understand the value of tenths and hundredths 23cm÷ 100= 2.3m 	Divide 1 or 2 digits by 10, 100 and 1000.Understand the value of tenths, hundredths and thousandths Refer to PV chart	Consolidation: Divide 1 or 2 digits by 10, 100 and 1000.Understand the value of tenths, hundredths and thousandths Refer to PV chart

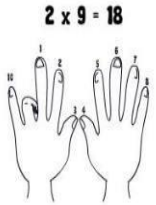
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Doubles/near doubles	Recall doubles to 10 and add near doubles. 6 + 6 = 12 6 + 7 = 13	Recall doubles of numbers to 20 and multiples of 10 – 50. 13 + 13 = 26 40 + 40 = 80 Add near doubles within 2-digits (adjusting by 1). 13 + 14 = 13 + 13 = 26 **SO** 13 + 14 = 27. 39 + 40 = 40 + 40 = 80 **SO** 39 + 40 = 79	Recall doubles of multiples of 10 – 100. 90 + 90 = 180 Add near doubles within 2-digits (adjusting up to 10). 60 + 70 = 60 + 60 = 120 **SO** 60 + 70 = 130 16 + 18 = 15 + 15 = 30 **SO** 16 + 18 = 34 (adjust by 4).	Recall doubles by partitioning. Double 38 Double 30= 60 Double 8= 16 60+16= 76	Recall doubles of decimals 3.4 + 3.4 = 6.8	Consolidation: Recall doubles of decimals 3.4 + 3.4 = 6.8
Halving	Recall halves to 20. Half of 12 = 6 Half of 16 = 8	Use number facts to recall halves to 100 (multiples of 10).	Use number facts to recall halves within 3 digits (multiple of 10).	Recall halves by partitioning Half of 238 Half of 200=100	Recall halves of decimals Half of 12.6	Consolidation: Recall halves of decimals Half of 12.6

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		Half of 80 = 40 Half of 8 = 4 (make 10x bigger). Halve 2-digit numbers by partitioning. Half of 36 = 18 Half of 30 = 15 Half of 6 = 3 15 + 3 = **18**	Half of 160 = 80 Half of 16 = 8 (make 10x bigger). Halve 3-digit numbers by partitioning. Half of 248 = 124 Half of 200 = 100 Half of 40 = 20 Half of 8 = 4 **100 + 20 + 4 = 124**	Half of 30= 15 Half of 8 = 4 100+15+4 =119	Recall halves by finding 50%, 25%, 10% of a small whole numbers or quantities 50% of £8. ½ of 8 25% of £12. Halve and Halve again ¼ of £12	Recall halves by finding 50%, 25%, 10% of a small whole numbers or quantities 50% of £8. ½ of 8 25% of £12. Halve and Halve again ¼ of £12
Times tables (all including division facts).	To recognise times table patterns for the 2x, 5x and 10x tables. **Counting in 2s.** Pattern – 2,4,6,8,0 All even. **Counting in 5s** Pattern – 0,5,0,5,0,5	To recall 2x, 5x, 10x and 3x tables. **2x tables** Add the number to itself 6 x 2, 6 + 6. Doubling. **5x tables** Times by 10 then halve.	To recall the 4x, 8x, 50x and 100x tables. **4x tables** All even. Double the 2x tables 4 x 6 = 24 **2** x 6 = 12, double = **24** Double then double again 4 x 7 = Double 7 = 14 Double again = 28 **8x tables** All even.	To recall 6, 7, 9 x tables **6x tables** Calculate the 3 x table and double 4 x 6= **24** 4 x 3 = 12 12 doubled = 24 **7x tables** Calculate x 5 + x2 4 x 7= **28** 4 x 5 = 20 4 x 2 = 8 20 + 8 =28	To use known facts to recall decimal times tables with up to 1dp: 0.3 x 7 = 2.1 0.3 x 10= 3 3 x 7= 21 21 ÷ 10 = **2.1** To use knowledge of multiplication facts to derive quickly squares of numbers to 12 12	Consolidation: To use known facts to recall decimal times tables with up to 1dp: 0.3 x 7 = 2.1 0.3 x 10= 3 3 x 7= 21 21 ÷ 10 = **2.1** To use knowledge of multiplication facts to derive quickly squares of numbers to 12 12

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	Counting in 10s All end in a zero. Tens column goes up in 1s.	5 x 6 10 x 6 = 60 Half of 60 = 30. **10x tables** Double the 5x tables. **3x tables** Count in 3s. The digits add to a multiple of 3 3 x 9 = 27 2 + 7 = 9 (multiple). Use this to check larger multiples… 3 x 13 = 39 3 + 9 = 12 (multiple).	Double the 4x tables 8 x 6 = 48 **4** x 6 = 24, double = **48** Double, double then double again 8 x 7 = **56** Double 7 = 14 Double 14 = 28 Double 28 = **56** **11x tables** Answer is always repeated digits	**9x tables** Finger trick!  2 x 9 = 18 - Each finger to the left of the curled finger represents 10. - Say 10, - Each finger to the right of the curled finger represents one. - Count 1, 2, 3, 4, 5, 6, 7, 8 . (Or 11, 12, 13, 14, 15, 16, 17, **18**) - 2 x 9 = 18 Move on to making links e.g all answers add up to 9 2x 9= 18 1 + 8=9 3 x 9 = 27 2 + 7=9 4 x 9 = 36 3 +6 = 9 **12x tables** X it by 10 and x by two then add. 3 x 12 = 3 x 10 = 30 add 3 x 2 = 6 so 36		and the corresponding squares of multiples of 10

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Early Years Foundation Stage

Number ELG Children at the expected level of development will:

- Have a deep understanding of number to 10, including the composition of each number;
- Subitise (recognise quantities without counting) up to 5;
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

Numerical Patterns ELG Children at the expected level of development will:

- Verbally count beyond 20, recognising the pattern of the counting system;
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity;
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.