



Mental Maths Essentials - Home Guide

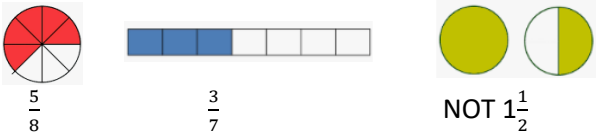
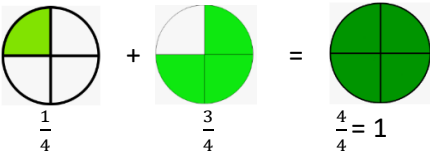
KS1

Year Group	Year 1	Year 2
Number bonds	<p>Number pairs to 10 E.g. 1 + 9, 2 + 8, 3 + 7 etc.</p>	<p>Recall of number pairs to 20 E.g. 10 + 10, 11 + 9, 12 + 8 etc.</p> <p>Number pairs to 100 (multiplies of 10) E.g. 10 + 90, 20 + 80, 30 + 70 etc.</p>
Number facts	<p>Addition facts 1-5 E.g. 1 + 4, 3 + 2, etc.</p> <p>One more or less than any 2-digit number E.g. 12 - 1 = 11, 12 + 1 = 13 etc.</p> <p>Ten more or less than any 2-digit number. E.g. 24 - 10 = 14, 24 + 10 = 34 etc.</p>	<p>Number facts for all numbers to 12 E.g. 8 + 3, 7 + 5, 4 + 7 etc.</p> <p>What needs to be added to a 2 digit to make next multiple of 10 E.g. 34 + ___ = 40, 67 + ___ = 70 etc.</p> <p>Subtract a single digit number from a multiple of 10 less than 100 E.g. 90 - 6 = 84, 70 - 3 = 67 etc.</p> <p>Add or subtract a single digit number from a 2-digit number crossing a 10s boundary. E.g. 34 + 8 = 42, 82 - 5 = 77 etc.</p>
Doubles and halves	<p>Doubles and halves numbers to 20 E.g. double 11 = 22, half 18 = 9 etc.</p> <p>Add near doubles E.g. 5 + 6 = 11 (5 + 5 = 10 + 1 = 11)</p> <p>Partition and adjust numbers up to 10 E.g. 8 + 6 = 14 (8 + 2 + 4 = 14)</p>	<p>Doubles and halves up to 40 E.g. double 16 = 32, half of 24 = 12 etc.</p> <p>Add near doubles under 40 E.g. 14 + 15 = (14 + 14 = 28 + 1 = 29)</p>
Table facts	<p>Counting out loud in 2, 5 and 10 E.g. 2, 4, 6, 8, 10...</p>	<p>Quick recall of 2, 5 and 10 facts E.g. 3 x 5 = 15, 6 x 10 = 60 etc.</p>
Fractions, decimals and percentages	<p>Recognise $\frac{1}{2}$ and $\frac{1}{4}$ of shape or quantity</p> <p>$\frac{1}{2}$ by splitting into 2 groups and counting how many in 1 group.</p> <p>$\frac{1}{4}$ by splitting into 4 groups and counting how many in 1 group.</p>	<p>Recognise a $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$ of a quantity or shape.</p> <p>$\frac{1}{3}$ by splitting into 3 groups and counting how many in 1 group.</p> <p>$\frac{3}{4}$ by splitting into 4 groups and counting how many in 3 groups.</p>
Number properties	<p>Odd and even numbers up to 20</p> <p>Odd: 1, 3, 5, 7, 9 etc. Even: 2, 4, 6, 8, 10 etc.</p>	<p>Recognise odd and even up to 100</p> <p>Look at the ones column Odd: 1, 3, 5, 7, 9 etc. Even: 2, 4, 6, 8, 10 etc.</p> <p>E.g. 47 is odd, 38 is even</p>
Measure	<p>Tell time to hour and half past E.g. 11 o'clock, half past 4</p>	<p>Tell time to hour, half, quarter and 5 minutes. E.g. 11 o'clock, half past 4, quarter to 8, 25 past 3 etc.</p>

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LKS2

Year Group	Year 3	Year 4
Number bonds	<p>Pairs of 2 digit numbers that total 100 E.g. 21 + 79, 22 + 78, 23 + 77 etc.</p> <p>Number pairs to 1000 (multiplies of 100) E.g. 100 + 900, 200 + 800, 300 + 700 etc.</p>	<p>Decimal pairs to 1 with 1dp E.g. 0.9 + 0.1, 0.8 + 0.2, 0.7 + 0.3 etc.</p>
Number facts	<p>Number facts for numbers up to 20 E.g. 14 + 3, 2 + 15, 12 + 7 etc.</p> <p>Count on in 50 from 0 E.g. 50, 100, 150, 200 etc.</p> <p>Additions and differences for multiples of 10 E.g. 30 + 40 = 70, 90 – 30 = 60 etc.</p> <p>Add and subtract any 2-digit by partitioning and counting on. E.g. 43 + 21 = 64 (40 + 20 = 60, 3 + 1 = 4, 60 + 4 = 64)</p> <p>Roman numerals to 12 E.g. I = 1, V = 5, X = 10 etc.</p>	<p>What must be added to a 3-digit number to make the next multiple of 100 E.g. 378 + 22 = 400, 539 + 61 = 600 etc.</p> <p>1000 more and less than a given number. E.g. 3472 + 1000 = 4472, 3472 – 1000 = 2472</p> <p>Add or subtract near multiples of 10 E.g. 24 + 9 24 + 10 (then remove 1) = 33</p> <p style="padding-left: 40px;">24 + 11 24 + 10 (then add 1 more) = 34</p> <p>Count in multiples of 25. E.g. 25, 50, 75, 100, 125 etc.</p> <p>Read Roman numerals to 100 E.g. XX = 20, L = 50, C = 100</p> <p>Find the difference between near multiples E.g. 607-600 600 + 600 = 1200 1200 + 7 = 1207</p>
Doubles and halves	<p>Doubles and halves of numbers to 100 with ones numbers less than 5 E.g. double 34 = 64, half of 84 = 42 etc.</p> <p>Doubles and halves of multiples of 10 and 100 E.g. Double 30 = 60, Half of 400 = 200</p> <p>Add near doubles under 100 E.g. 34 + 35 = (34 + 34 = 68 + 1 = 69)</p>	<p>Addition of doubles and halve to 100 e.g. 38+38 E.g. double 40 = 80 80 – 4 = 76 (the 4 comes from adding 2 on to each 38)</p> <p>Revise doubles of multiples of 10 and 1000 E.g. Double 30 = 60, Half of 400 = 200</p> <p>Finding the number half way between 2 numbers E.g. Halfway between 26 and 58 58 – 26 = 32 Half of 32 = 16 26 + 16 = 42</p>

Table facts	<p>Quick recall of 2, 3, 4, 5, 8, 10 and 11 E.g. $3 \times 4 = 12$, $8 \times 6 = 48$ etc.</p> <p>Partition teen numbers to multiply by a single digit E.g. $16 \times 3 =$ ($10 \times 3 = 30$, $6 \times 3 = 18$, $30 + 18 = 48$)</p> <p>Multiply by 4 by double and double again E.g. 15×4 Double 15 = 30 Double 30 = 60</p> <p>Divide by 4 by halving and halving again E.g. $60 \div 4$ 60 halved = 30 30 halved = 15</p>	<p>Recall of all multiplication fact 12x12 E.g. $3 \times 7 = 21$, $8 \times 9 = 72$ etc.</p> <p>Partition and multiply a 2-digit number by a single digit. E.g. $36 \times 3 =$ ($30 \times 3 = 90$, $6 \times 3 = 18$, $90 + 18 = 108$)</p> <p>Multiply by 10 and 100 E.g. $37 \times 10 = 370$, $487 \times 100 = 487000$ etc.</p> <p>Multiply by 8 by double, double and double again E.g. 15×8 Double 15 = 30 Double 30 = 60 Double 60 = 120</p> <p>Divide by 8 by halving, halving and halving again E.g. $120 \div 8$ 120 halved = 60 60 halved = 30 30 halved = 15</p>
Fractions, decimals and percentages	<p>Identifying a fraction less than 1 E.g.</p>  <p>Fraction and decimal equivalents for halves and tenths. E.g. $\frac{1}{2} = 0.5$, $\frac{2}{10} = 0.2$, $\frac{7}{10} = 0.7$</p>	<p>Pairs of fractions to 1 E.g.</p>  <p>Fraction, Decimal, Percentage equivalents of 1/2, quarters, tenths and hundredths. E.g. $\frac{1}{2} = 0.5 = 50\%$, $\frac{1}{4} = 0.25 = 25\%$, $\frac{3}{4} = 0.75 = 75\%$, $\frac{1}{10} = 0.1 = 10\%$, $\frac{1}{100} = 0.01 = 1\%$ etc.</p> <p>Instant recall of fractions of amounts with numerators of 1 E.g. $\frac{1}{3}$ of 120, $\frac{1}{5}$ of 45 etc.</p>
Number properties	<p>Recognise any odd and even number</p> <p>Look at the ones column Odd: 1, 3, 5, 7, 9 etc. Even: 2, 4, 6, 8, 10 etc.</p> <p>E.g. 347 is odd, 638 is even</p>	<p>Factor pairs for known multiplication facts E.g. Factor pairs of 18: 1 and 18, 2 and 9, 3 and 6</p> <p>Common multiples E.g. Common multiples of 30 and 18: 1, 3, 6</p>
Measure	<p>Key time facts e.g. minutes in an hour, days of the week, days in a month etc. E.g. 60 minutes in 1 hour, 7 days in a week etc.</p> <p>Tell time to the nearest minute E.g. 12 minutes past 6, 13 minutes to 5</p>	<p>Know all the units of measure. E.g. mm, cm, m, km g, kg ml, l</p>

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UKS2

Year Group	Year 5	Year 6
Number bonds	<p>Decimal pairs to 1 using 2dp E.g. $0.81 + 0.19$, $0.72 + 0.28$ etc.</p> <p>Decimal pairs to 10 with 2dp E.g. $7.34 + 2.66$, $3.58 + 6.42$ etc.</p>	<p>Decimal pairs for 3dp to whole numbers. E.g. $3.475 + 0.525 = 4$ $6.389 + 0.611 = 7$ etc.</p>
Number facts	<p>What must be added to 4-digit number to make the next multiple of 1000 E.g. $3785 + 215 = 4000$, $5396 + 604 = 6000$ etc.</p> <p>Add or subtract near multiples of numbers E.g. $524 + 29$ $524 + 30$ (remove 1) = 553</p> <p style="padding-left: 40px;">$524 + 31$ $524 + 30$ (add 1 more) = 554</p> <p>What must be added to decimal with 1dp to make the next whole number? E.g. $754.6 + 0.4 = 755$ etc.</p> <p>Roman numerals to 1000 E.g. CL = 150, CM = 900, M = 1000</p>	<p>Count on back to through positive and negative numbers. E.g. -5, -4, -3, -2, -1, 0, 1, 2, 3, 4</p> <p>Add positive and negative numbers together. (temp) E.g. The temperature in the morning was -5°. By lunchtime, it had risen by 10 degrees. What is the temperature at lunchtime?</p>
Doubles and halves	<p>Doubles and halves of decimals to 10 with 1dp E.g. Double $4.7 = 9.4$ Half of $6.8 = 3.4$ etc.</p> <p>Finding the number half way between 2 numbers E.g. Halfway between 2.6 and 5.8 $5.8 - 2.6 = 3.2$ Half of $3.2 = 1.6$ $2.6 + 1.6 = 4.2$</p>	<p>Doubles and halves of decimals to 100 E.g. Double $38.7 = 77.4$ Half of $98.2 = 49.1$ etc.</p> <p>Finding the number half way between 2 numbers E.g. Halfway between -2 and 6 The difference between -2 and $6 = 8$ Half of $8 = 4$ $-2 + 4 = 2$</p>
Table facts	<p>Squares to 12x12 E.g. $4^2 = 4 \times 4 = 16$, $9^2 = 9 \times 9 = 81$ etc.</p> <p>Use factors and multiples in multiplication. E.g. 43×4 is double 43×2 (because we would double 2 to make 4) $43 \times 4 = 172$ $43 \times 2 = 86$ Etc.</p> <p>Multiplication by 50 and 25 E.g. $6 \times 50 = 300$ $6 \times 25 = 150$</p>	<p>Cubes to 10 x 10 x 10 E.g. $4^3 = 4 \times 4 \times 4 = 64$ $9^3 = 9 \times 9 \times 9 = 729$ etc.</p> <p>Use rounding in mental multiplication E.g. 34×19 is $34 \times 20 - 34$</p>

	<p>Know tests for divisibility E.g. a number is divisible by 3 if the sum of the digits is divisible by 3 (129 is divisible by 3 because $1+2+9 = 12$ and 12 can be divided by 3)</p> <p>E.g. A whole number is divisible by 4 if the last two digits are divisible by 4.</p> <p>1312 is ($12 \div 4 = 3$) Yes ✓</p> <p>7019 is not ($19 \div 4 = 4.75$) No ✗</p> <p>Revise multiplying and dividing by 4 and 8 (See Year 3 and 4 examples)</p>	
<p>Fractions, decimals and percentages</p>	<p>Equivalents to halves, quarters, tenths, hundredths, thirds and fifths. See year 4 examples and E.g. $\frac{1}{3} = 0.333 = 33.3\%$ $\frac{1}{5} = 0.2 = 20\%$ etc.</p> <p>Mentally derive fractions of amounts. With numerator above 1 (divide by the denominator then multiply by the numerator) E.g. $\frac{2}{3}$ of 21 $21 \div 3 = 7$ $7 \times 2 = 14$</p>	<p>Equivalents to halves, quarters, tenths, hundredths, thirds and fifths. Try ninths and elevenths See year 4 and 5 examples and E.g. $\frac{1}{9} = 0.11111 = 11.1\%$ $\frac{1}{11} = 0.090909 = 9.09\%$ etc.</p> <p>Mentally derive fractions of amounts. With numerator above 1 See year 5 examples</p> <p>Percentages of amounts. E.g. 30% of 120, 45% of 300</p>
<p>Number properties</p>	<p>Factor pairs numbers up to 100 E.g. Factor pairs of 52: 1 and 52, 2 and 26, 4 and 13 etc.</p> <p>Prime numbers to 20 (A number that can only be divided by 1 and itself)</p> <p>E.g. 2, 3, 5, 7, 11, 13, 17, 19</p>	<p>Prime up to 100 E.g. 2,3,5,7,11,13,17,19, 23,29,31,37,41, 43,47,53,59,61,67,71, 73,79,83, 89 and 97</p> <p>Prime factors of numbers up to 100 A factor that is a prime number. In other words: any of the prime numbers that can be multiplied to give the original number.</p> <p>E.g. The prime factors of 15 are 3 and 5 (because $3 \times 5 = 15$, and 3 and 5 are prime numbers).</p>
<p>Measure</p>	<p>Know all the metric conversions. E.g. mm to cm, cm to m, m to km g to kg ml to l and vice versa</p>	<p>Revise the previous work. See other year group examples.</p>