## Known and Related Facts - Multiplication and Division

EYFS and Key Stage 1

| EYFS | Year 1 | Year 2 |
| :---: | :---: | :---: |
| Double numbers up to 5. | Double numbers up to 10. | Recall and use multiplication and division facts <br> for the 2,5 and 10 multiplication tables. |
| Share 10, 8, 6, 4, 2 equally in practical <br> contexts and understand that these <br> numbers are even. | Recall half of | Link multiplying and dividing by 2 to |
| doubling and halving. |  |  |
| . | Count on and back in $2 \mathrm{~s}, 5 \mathrm{~s}$, and 10 s |  |
|  | Share into 2,5 and 10 equal groups. |  |



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Key Stage 2

| Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: |
| Recall and use multiplication and division facts for the $2,3,4,5,8$ and 10 multiplication tables. <br> Use place value knowledge to derive scaled multiplication facts. (Scaled by 10) <br> Count in multiples of 50 and 100 and explain the relationship between them. | Recall and use multiplication and division facts for multiplication tables up to $12 \times 12$. <br> Use place value knowledge to derive scaled multiplication facts. (Scaled by 100) <br> Count in multiples of 25 and 1000. <br> Use place value knowledge to derive scaled multiplication facts. (Scaled by, 1000, $\frac{1}{10}$ or $\frac{1}{100}$.) | Recall and use multiplication and division facts for multiplication tables up to $12 \times 12$. <br> Use place value knowledge to derive scaled multiplication facts. (Scaled by, 1000, $\frac{1}{10}$ or $\frac{1}{100}$.) <br> Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. <br> Recall prime numbers up to 19 . <br> Recognise and use square numbers and cube numbers, and the notation for squared $\left(^{2}\right)$ and cubed ( ${ }^{3}$ ) | Recall and use multiplication and division facts for multiplication tables up to $12 \times 12$. <br> Solve missing box calculations with a range of scaled facts. $\begin{gathered} 0.4 \times ?=2.4 \\ 2400 \div ?=80 \end{gathered}$ <br> Identify common factors, common multiples and prime numbers. <br> Continue sequences involving multiplication (Algebra). |

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Progression in Mental Multiplication

|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Known and Related Facts | - - | $5 \times 2=2 \times 5$ | $\begin{gathered} 4 \times 8 \\ 40 \times 8 \end{gathered}$ | $\begin{gathered} 6 \times 7 \\ 60 \times 7 \\ 600 \times 7 \end{gathered}$ | $\begin{gathered} 4,000 \times 7 \\ 40 \times 70 \\ 400 \times 70 \\ 0.4 \times 7 \\ 0.04 \times 7 \end{gathered}$ | $\begin{gathered} ? \times 7=28,000 \\ 40 \times ?=2,800 \\ 400 \times ?=28,000 \\ 0.4 \times ?=2.8 \\ ? \times 7=0.28 \\ \hline \end{gathered}$ |
| Doubling | Double 9 | Double 14 <br> Double 17 <br> Double 40 <br> Double 35 | Double 38 Double 70 Double 65 Double 300 $6 \times 4$ $7 \times 8$ | Double 78 Double 340 Double 800 Double 4,000 $16 \times 4$ $15 \times 8$ | Double 678 Double 8,000 Double 12,000 Double 7.8 $125 \times 4$ $120 \times 8$ | Apply doubling to problem solving and algebra. $2 n+4=$ |
| Multiplying by Powers of 10 | - | $3 \times 10$ | $30 \times 10$ | $\begin{gathered} 36 \times 10 \\ 845 \times 10 \\ 68 \times 100 \end{gathered}$ | $38,456 \times 10$ $3,672 \times 100$ $782 \times 1,000$ $6.48 \times 10 / 100 / 1,000$ | $6.936 \times 10 / 100 / 1000$ |
| Partitioning | - | - | $24 \times 5$ | $132 \times 3$ | $2.62 \times 4$ | All of these methods are taught prior to Year 6. Children will reflect on the numbers involved in a calculation and choose the most appropriate strategy. |
| Compensating | - | $5 \times 9$ | $8 \times 9$ | $\begin{gathered} 7 \times 9 \\ 39 \times 5 \end{gathered}$ | $150 \times 9$ |  |
| Associative Law | - | - | - | $\begin{array}{r}  \\ 2 \times 4 \times 7 \\ =2 \times 7 \times 4 \\ \hline \end{array}$ | $\begin{gathered} 6 \times 4 \times 7 \\ =6 \times 7 \times 4 \end{gathered}$ |  |
| Distributive Law | - | - | - | $\begin{gathered} 6 \times 7=6 \times(5+2) \\ =6 \times 5+6 \times 2 \\ =30+12 \end{gathered}$ | $\begin{aligned} & 250 \times 7 \\ = & 250 \times(4+3) \\ = & 1000+750 \end{aligned}$ |  |
| Double one side, half the other | - | - | - | $\begin{aligned} & 18 \times 5 \\ & 24 \times 5 \end{aligned}$ | $\begin{aligned} & 24 \times 50 \\ & 36 \times 25 \end{aligned}$ |  |
| Multiplying by a Power of 10 and halving | - | - | $8 \times 5$ | $\begin{array}{r} 6 \times 5 \\ 18 \times 5 \\ 24 \times 5 \\ \hline \end{array}$ | $\begin{gathered} 18 \times 5 \\ 24 \times 50 \\ 36 \times 25 \end{gathered}$ |  |
| Factorising | - | - | - | $\begin{gathered} 7 \times 6 \\ =7 \times 3 \times 2 \end{gathered}$ | $\begin{gathered} 53 \times 20 \\ =53 \times 2 \times 10 \\ \text { Or }=53 \times 10 \times 2 \end{gathered}$ | $75 \times 6=75 \times 2 \times 3$ |

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Progression in Mental Division

|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Known and Related Facts | - | $\begin{aligned} & 10 \div 2=5 \\ & 10 \div 5=2 \end{aligned}$ | $\begin{gathered} 32 \div 4 \\ 320 \div 4 \end{gathered}$ | $\begin{gathered} 42 \div 7 \\ 420 \div 7 \\ 4,200 \div 7 \end{gathered}$ | $\begin{gathered} 28,000 \div 7 \\ 2,800 \div 70 \\ 28,000 \div 70 \\ 2.8 \div 7 \\ 0.28 \div 7 \end{gathered}$ | $\begin{gathered} 2.8 \div ?=0.4 \\ 0.28 \div ?=7 \end{gathered}$ |
| Halving | Halve 8 | Halve 16 <br> Halve 80 <br> Halve 90 | Halve 84 <br> Halve 92 <br> Halve 140 <br> Halve 130 <br> Halve 800 $28 \div 4$ | Halve 156 Halve 680 Halve 1,600 Halve 8,000 $64 \div 4$ $120 \div 8$ | Halve 1,350 <br> Halve 16,000 <br> Halve 15.6 $\begin{gathered} 500 \div 4 \\ 1,000 \div 8 \end{gathered}$ | Apply halving to problem solving and algebra. $\frac{n}{2}+7$ |
| Dividing by <br> Powers of 10 | - | $70 \div 10$ | $300 \div 10$ | $\begin{gathered} \hline 360 \div 10 \\ 7 \div 10 \\ 45 \div 10 \\ 8 \div 100 \\ 76 \div 100 \\ \hline \end{gathered}$ | $\begin{gathered} 38.2 \div 10 \\ 3,672 \div 100 \\ 6,450 \div 1,000 \end{gathered}$ | $\begin{gathered} 76.62 \div 10 \\ 64.2 \div 100 \\ 782 \div 1,000 \end{gathered}$ |
| Distributive Law | - | - | - | $\begin{gathered} 48 \div 3 \\ =30 \div 3+18 \div 3 \end{gathered}$ | $\begin{gathered} 384 \div 6 \\ =360 \div 6+24 \div 6 \end{gathered}$ | In Year 6, children will apply the distributive law of division to chunking. |
| Factorising | - | - | - | - | $\begin{gathered} 460 \div 20 \\ =460 \div 10 \div 2 \\ \text { or }=460 \div 2 \div 10 \end{gathered}$ | $\begin{gathered} 120 \div 15 \\ =120 \div 3 \div 5 \end{gathered}$ |

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