


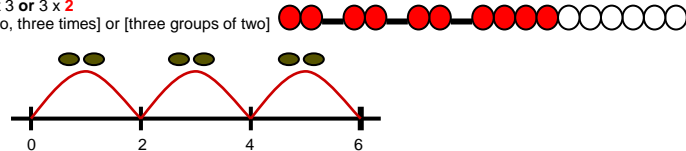
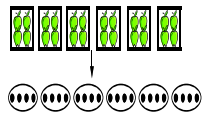
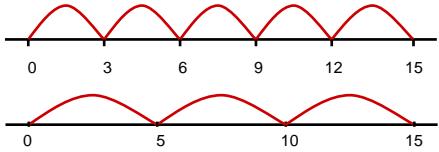
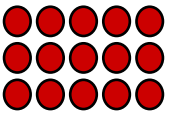
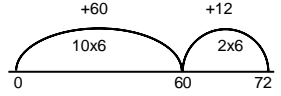


Calculation Policy : Multiplication

| | Age related expectations | Methods | | | Rapid recall | Mental calculation |
|------|---|--|---|---|---|--|
| EYFS | Solve (practical) problems that involve doubling. | Practical / recorded using ICT (e.g. digital photos / pictures on IWB) | Pictures / Objects 3 plates, 2 cakes on each plate:  | Symbols 3 plates, 2 cakes on each plate:  | | (see recording) |
| Y1 | Solve (practical) problems that involve combining groups of 2, 5 or 10 <i>Multiplication as arrays, number patterns and counting in 2's, 5's and 10's and apply to calculations</i> | Pictures / Symbols There are three sweets in one bag. How many sweets are there in five bags?  | Number tracks / Number line (modelled using bead strings) 2 x 3 or 3 x 2 [two, three times] or [three groups of two]  | | Count on / back in 1s, 2s, 5s and 10s Doubles of numbers to 10 | (see recording) |
| Y2 | Multiplication as <i>repeated addition</i> and <i>arrays</i> and relate to <i>grouping</i> As Y1 plus multiples of 3 and apply to calculations and problem solving | Pictures / Symbols There are four apples in each box. How many apples in six boxes?  | Repeated addition 5 x 3 or 3 x 5  | Arrays 5 x 3 or 3 x 5  Children start by understanding multiplication as arrays and repeated addition. They use this understanding to help them work out multiplication facts they cannot recall quickly | Multiplication facts for the 2, 5 and 10 x tables. Doubles of numbers to 20 | Solve problems involving the 2,5 and 10 times table. |
| Y3 | 2 digit x 1 digit (e.g. 13 x 4) As Y2 plus multiples of 4 and 8 and apply to calculations and apply to problem solving | Partitioning chn may still need this modelled as an array to show partitioning) 13 x 4 10 x 4 = 40 3 x 4 = 12 | Expanded vertical $\begin{array}{r} 43 \\ \times 6 \\ \hline 18 \quad (3 \times 6) \\ 240 \quad (40 \times 6) \\ \hline 258 \end{array}$ | Short multiplication $\begin{array}{r} 43 \\ \times 6 \\ \hline 258 \end{array}$ 4.7×8 (estimate: $5 \times 8 = 40$) | Long Multiplication 256×18 (estimate: $250 \times 20 = 5000$) $\begin{array}{r} 256 \\ \times 18 \\ \hline 2048 \\ 4608 \\ \hline 4608 \end{array}$ Answer: $256 \times 18 = 4608$ | Multiplication facts for the 3,4 and 8 x tables. Recognise multiples of 2, 3, 4, 5, 8, 10, 50 and 100. Use commutatively to help solve calculations (e.g. $4 \times 12 \times 5 = 4 \times 5 \times 12 = 20 \times 12 = 240$) Use related facts to 2 digit nos. (e.g. $3 \times 2 = 6$, $30 \times 2 = 6$) |
| Y4 | Multiply 2 digit and 3 digit nos. by 1 digit no using formal written and apply to calculations and problem solving | 43×6 (estimate: $40 \times 6 = 240$) $40 \times 6 = 240$ $3 \times 6 = 18$ Some children may need this modelling on a no line eg 12×6  | 237×4 (estimate: $250 \times 4 = 1000$) $\begin{array}{r} 237 \\ \times 4 \\ \hline 28 \\ 120 \\ 900 \\ \hline 948 \end{array}$ | $\begin{array}{r} 4.7 \\ \times 8 \\ \hline 37.6 \end{array}$ | Recall multiplication facts up to 12×12 Count in multiples of 6, 7, 9, 25 and 1000. | Use place value to multiply (e.g. $2 \times 3 = 6$, $200 \times 3 = 600$) TU x U (eg. $39 \times 7 = 30 \times 7 + 9 \times 7$) TU and U x 10 and 100 |
| Y5 | Multiply up to 4 digit nos by 1 or 2 digit nos. using formal written including long multiplication for 2 digit nos and apply to calculations and problem solving | 2327×8 (estimate: $2300 \times 10 = 23000$) $\begin{array}{r} 2327 \\ \times 8 \\ \hline 56 \\ 160 \\ 2400 \\ 16000 \\ \hline 18616 \end{array}$ | | | Prime numbers to 19 Square and cubed numbers to 100. | Multiply whole numbers and decimals by 10, 100 and 1000. Prime numbers to 100 |
| Y6 | Multiply multi-digit nos up to 4 digits by a 2 digit whole no. using formal written methods of long multiplication. Apply to calculations and problem solving. Multiply nos. up to 2dp by 1 digit nos. | This will support children in learning their tables using known facts and in understanding the distributive law which they will apply later when using the grid method. | | | As above | Perform mixed operation multi step problems mentally |

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