



Multiplication & Division

- **By the end of Year 3**, children should be able to recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- **By the end of Year 4**, children should be able to recall multiplication and division facts for multiplication tables up to 12×12
- **By the end of Year 5**, children should be able to apply knowledge of multiplication and division (find factors, multiples, prime and composite numbers, square numbers)
- **By the end of Year 6**, children have developed mathematical fluency and apply multiplication and division facts in more complex problems and calculations

Formal Written Columnar Methods

Year 3:

Pupils should be taught to write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.

24 x 6 becomes

$$\begin{array}{r} 24 \\ \times 6 \\ \hline 144 \\ \hline 2 \end{array}$$

Answer: 144

Children must have a good understanding of the value of digits before moving onto short multiplication.

$$\begin{array}{r} 24 \times 6 \\ 24 \\ 6 \\ \hline 120 \quad (20 \times 6) \\ 24 \quad (4 \times 6) \\ \hline 144 \end{array}$$

If you know $3 \times 4 = 12$, what else do you know?

Formal Written Columnar Methods

Year 4:

Pupils should be taught multiply two-digit and three-digit numbers by a one-digit number using formal written layout.

24 × 6 becomes

$$\begin{array}{r} 24 \\ \times 6 \\ \hline 144 \\ \hline 2 \end{array}$$

Answer: 144

342 × 7 becomes

$$\begin{array}{r} 342 \\ \times 7 \\ \hline 2394 \\ \hline 21 \end{array}$$

Answer: 2394

Formal Written Columnar Methods

Year 5:

Pupils should be taught to multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers.

2741 × 6 becomes

$$\begin{array}{r} 2741 \\ \times \quad 6 \\ \hline 16446 \\ \hline 42 \end{array}$$

Answer: 16 446

Long multiplication

24 × 16 becomes

$$\begin{array}{r} 24 \\ \times 16 \\ \hline 240 \\ 144 \\ \hline 384 \end{array}$$

Answer: 384

124 × 26 becomes

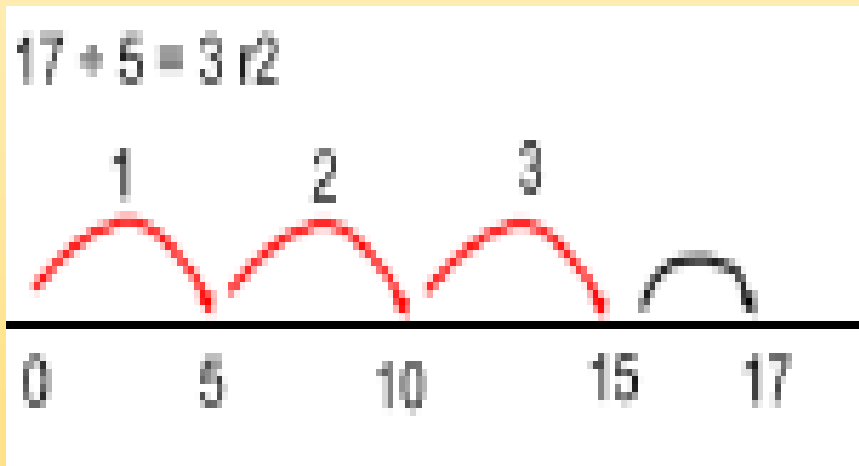
$$\begin{array}{r} 124 \\ \times 26 \\ \hline 2480 \\ 744 \\ \hline 3224 \\ \hline 11 \end{array}$$

Answer: 3224

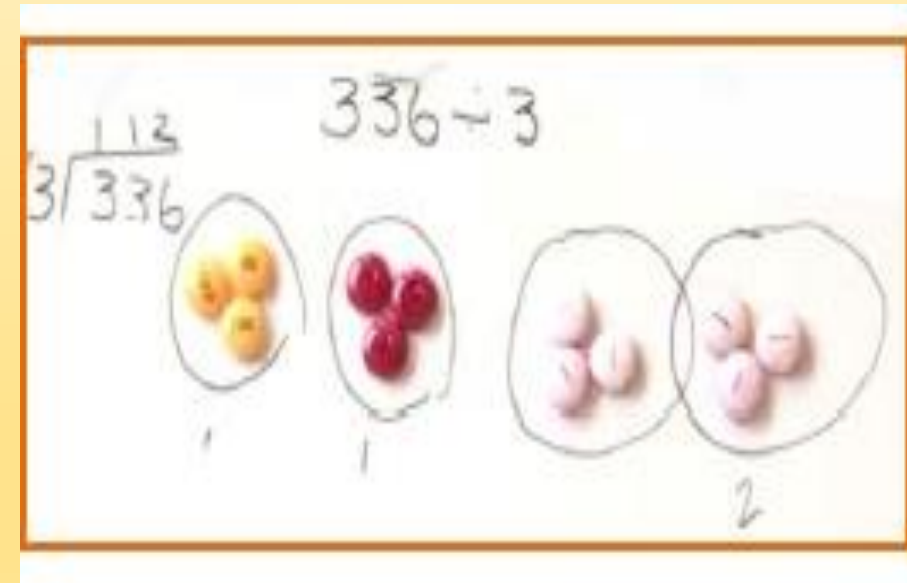
Formal division methods

Year 3:

- Pupils should be taught to write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.
- Focus on the facts they know, including 3, 4 and 8 times tables.



Children must have a good understanding of the value of digits before moving onto more formal methods.



The inverse!

Formal division methods

Year 4:

- Pupils should be taught to recall multiplication and division facts for multiplication tables up to 12×12
- Pupils practise to become fluent in the formal written method of short multiplication and short division with exact answers.

Short division

$98 \div 7$ becomes

$$\begin{array}{r} 14 \\ 7 \overline{) 98} \\ \underline{7} \\ 28 \\ \underline{28} \\ 0 \end{array}$$

Answer: 14

$432 \div 5$ becomes

$$\begin{array}{r} 86 \text{ r } 2 \\ 5 \overline{) 432} \\ \underline{40} \\ 32 \\ \underline{30} \\ 2 \end{array}$$

Answer: 86 remainder 2

The inverse!

Formal division methods

Year 5:

- Pupils should be taught to divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context*

Short division

98 ÷ 7 becomes

$$\begin{array}{r} 14 \\ 7 \overline{) 98} \\ \underline{7} \\ 28 \\ \underline{28} \\ 0 \end{array}$$

Answer: 14

432 ÷ 5 becomes

$$\begin{array}{r} 86 \text{ r } 2 \\ 5 \overline{) 432} \\ \underline{40} \\ 32 \\ \underline{30} \\ 2 \end{array}$$

Answer: 86 remainder 2

Remainders

Formal division methods

Year 6:

- Pupils should be taught to divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context*

496 ÷ 11 becomes

$$\begin{array}{r} 45 \text{ r}1 \\ 11 \overline{) 496} \\ \underline{44} \\ 56 \\ \underline{55} \\ 1 \end{array}$$

$$257 \div 16$$

11
22
33
44
55
66
77
88
99
110

Remainders as fractions
and decimals

Answer: $45 \frac{1}{11}$