

As outcomes, Year 5 pupils should, for example:

Use, read and write, spelling correctly:
times, multiply, multiplied by, product, multiple, inverse... and the \times sign.

Understand and use as appropriate the principles (but not the names) of the commutative, associative and distributive laws as they apply to multiplication:

Example of commutative law

$$8 \times 65 = 65 \times 8$$

Example of associative law

$$14 \times 12 = (2 \times 7) \times 12 = 2 \times (7 \times 12) = 2 \times 84 = 168$$

Examples of distributive law

$$26 \times 7 = (20 + 6) \times 7 = (20 \times 7) + (6 \times 7) = 182$$

$$(6 \times 15) + (4 \times 15) = 10 \times 15 = 150$$

Understand that, with positive whole numbers, multiplying makes a number larger.

Understand that multiplication is the inverse of division and use this to check results.

See also mental calculation strategies (pages 60–65) and checking results of calculations (page 73).

Start to use brackets: know that they determine the order of operations, and that their contents are worked out first. For example:

$$3 + (6 \times 5) = 33, \text{ whereas } (3 + 6) \times 5 = 45.$$

Respond rapidly to oral or written questions, explaining the strategy used. For example:

- Two twelves.
- Double 32.
- 7 times 8... 9 multiplied by 7.
- Multiply 31 by 8... by zero... by 1.
- Is 81 a multiple of 3? How do you know?
- What is the product of 25 and 4?
- Find all the different products you can make by using three of these: 6, 7, 8, 9, 11.

Complete written questions, for example:

- working rapidly, using pencil and paper jottings and/or mental strategies:

$70 \times 6 = \square$	$11 \times \square = 88$	$\square \times 9 = 0.36$
$80 \times 9 = \square$	$6 \times \square = 4.8$	$\square \times 7 = 0.49$
- using informal or standard written methods:

$72 \times 6 = \square$	$180 \times \square = 540$	$\square \times 9 = 189$
$14 \times \square + 8 = 50$		$46 \times 28 = \square$

Use written methods or a calculator to work out:

$132 \times 46 = \square$	$\square \times \triangle = 162$
$2.7 \times 8 = \square$	$(14 \times 60) + \square = 850$

As outcomes, Year 6 pupils should, for example:

Use, read and write, spelling correctly:
times, multiply, multiplied by, product, multiple, inverse... and the \times sign.

Understand and use when appropriate the principles (but not the names) of the commutative, associative and distributive laws as they apply to multiplication:

Example of commutative law

$$95 \times 78 = 78 \times 95$$

Example of associative law

$$10.4 \times 40 = 10.4 \times (10 \times 4) \text{ or } (10.4 \times 10) \times 4$$

Example of distributive law

$$\begin{aligned} 46 \times 98 &= 46 \times (100 - 2) \\ &= (46 \times 100) - (46 \times 2) \\ &= 4600 - 92 = 4508 \end{aligned}$$

Understand that multiplication is the inverse of division and use this to check results.

See also mental calculation strategies (pages 60–65) and checking results of calculations (page 73).

Use brackets: know that they determine the order of operations, and that their contents are worked out first.

Respond rapidly to oral or written questions, explaining the strategy used. For example:

- Two nineteens.
- Double 75.
- 11 times 8... 9 multiplied by 8.
- Multiply 25 by 8... by zero... by 1.
- Is 210 a multiple of 6? How do you know?
- What is the product of 125 and 4?
- Find all the different products you can make using two of these: 0.2, 1.4, 0.03, 1.5, 0.5.

Complete written questions, for example:

- working rapidly, using pencil and paper jottings and/or mental strategies:

$0.7 \times 20 = \square$	$20 \times \square = 8000$	$\square \times 5 = 3.5$
$4 \times 0.9 = \square$	$0.3 \times \square = 2.4$	$\square \times 0.4 = 2$
- using informal or standard written methods:

$132 \times 46 = \square$	$\square \times 9 = 18.9$
$24 \times \square + 8 = 3008$	$38 \times \square = 190$

Use written methods or a calculator to work out:

$738 \times 639 = \square$	$\square \times \triangle = 9506$
$(41 \times 76) + \square = 4000$	$78 \times (97 - 42) = \square$