

### As outcomes, Year 2 pupils should, for example:

Understand, use and begin to read:  
*double, times, multiply, multiplied by, multiple of...  
 lots of, groups of... times as (big, long, wide...)*  
 and read and write the  $\times$  sign.

Understand multiplication as:

- **repeated addition:** for example,  
 5 added together 3 times is  $5 + 5 + 5$ , or 3 lots of 5,  
 or 3 times 5, or  $5 \times 3$  (or  $3 \times 5$ ).
- **describing an array:** for example,

$$\begin{array}{c} \blacksquare \blacksquare \blacksquare \blacksquare \\ \blacksquare \blacksquare \blacksquare \blacksquare \end{array} 4 \times 2 = 8$$

$$2 \times 4 = 8$$

Begin to recognise from arranging arrays that multiplication can be done in any order:  
 for example, 4 lots of 2 and 2 lots of 4 are the same.

Understand and use the principle that doubling reverses halving (doubling is the inverse of halving).  
 For example, knowing a double such as  $11 \times 2 = 22$  implies that half of 22 is 11, or  $22 \div 2 = 11$ .

Respond rapidly to oral or written questions such as:

- Two fives... Double 5...
- 6 times 2
- 5 multiplied by 2... Multiply 4 by 2

Record simple mental multiplications in a number sentence using the  $\times$  and  $=$  signs.

Recognise the use of symbols such as  $\square$  or  $\triangle$  to stand for unknown numbers, and complete, for example:

- with rapid mental recall:  
 $6 \times 2 = \square$      $9 \times \square = 18$      $\square \times 2 = 14$   
 $6 \times 10 = \square$      $2 \times \square = 20$      $\square \times 10 = 40$
- using rods or diagrams (e.g. arrays or a number line), then mental strategies, explaining method:  
 $5 \times 4 = \square$      $5 \times \square = 15$      $\square \times 4 = 8$   
 $6 \times 10 = \square$      $\square \times \triangle = 12$

Begin to interpret situations as multiplication calculations, and explain reasoning. For example:

- How many wheels are there on 3 cars?
- Jo's box is 5 cm wide.  
 Mary's box is twice as wide as Jo's box.  
 How wide is Mary's box?

### As outcomes, Year 3 pupils should, for example:

Use, read and begin to write:  
*double, times, multiply, multiplied by, product,  
 multiple of... times as (big, long, wide...)*  
 and read and write the  $\times$  sign.

Understand multiplication (**see Year 2**) as:

- **repeated addition;**
- **describing an array;**
- **scaling** (a number of times as wide, tall...): e.g.  
 Take the blue ribbon. Find the ribbon that is 4 times as long.  
 Make a red tower 5 cubes high. Make a blue tower 3 times as high.

Understand that multiplication can be done in any order, for example,  $5 \times 8 = 8 \times 5$ , but that  $16 \div 2$  is not the same as  $2 \div 16$ , and use this property appropriately.

Understand the principle that multiplication reverses division (multiplication is the inverse of division).

**See also using the relationship between multiplication and division (page 55), and checking results (page 59).**

Respond rapidly to oral or written questions such as:

- Two tens... Double 2... 3 times 4...
- 9 multiplied by 2... Multiply 5 by 8...
- Is 20 a multiple of 5?

Record mental multiplications in a number sentence using the  $\times$  and  $=$  signs.

Recognise the use of symbols such as  $\square$  or  $\triangle$  to stand for unknown numbers, and complete, for example:

- with rapid mental recall:  
 $5 \times 2 = \square$      $10 \times \square = 80$      $\square \times 5 = 30$   
 $4 \times 4 = \square$      $3 \times \square = 15$      $\square \times 4 = 20$
- using rods or diagrams (e.g. arrays or a number line), then mental strategies, explaining method:  
 $5 \times 3 = \square$      $8 \times \square = 40$      $\square \times 9 = 45$   
 $6 \times 20 = \square$      $\square \times \triangle = 60$

Interpret situations as multiplication calculations, and explain reasoning. For example:

- A baker puts 6 buns in each of 4 rows.  
 How many buns does she bake?
- Sue has 10 stamps. Tim has 3 stamps for every one of Sue's. How many stamps has Tim?
- Alex has 4 stickers.  
 Jo has 3 times as many stickers as Alex.  
 How many stickers does Jo have?