

Multiplication: Yellow (Y2)

Mental Work
Derive and recall

- doubles of all numbers to 20, e.g. double 13 (partition: double the tens and ones separately, then recombine; know that doubling is equivalent to multiplying by 2)
- doubles of multiples of 10 to 50, e.g. double 40
- multiplication facts for the 2, 5 and 10 times tables
- odd and even numbers to 100

Work mentally (with jottings if needed)

- double any multiple of 5 up to 50, e.g. double 35
- find the total number of objects when they are organised into groups of 2, 5 or 10 (use knowledge of table facts, e.g. recognise that there are 15 objects altogether because there are three groups of 5)



Children should be encouraged to:

- * approximate** their answers before calculating
- * consider if a mental calculation** would be appropriate before using written methods
- * check their answers** after calculation using an appropriate strategy


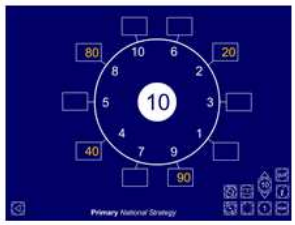
Practical work

To demonstrate counting in groups:

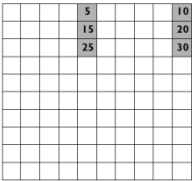
- use the Grouping ITP
- use Numicon plates
- use 100 square

Use Numicon Visiting table for a 5 plate. How many times have you gone for a 5? 5 multiplied by 6 or 5 x 6 or six lots of five, or six times five.

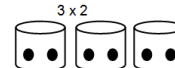



Encourage children to use fingers to keep tally of the number of multiples counted

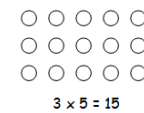


Counting in 5s on a 100 square
How many 5s have we counted?

Use objects, e.g. beads in pots




Children should be able to model a multiplication calculation using an **array**. This knowledge will support with the development of the grid method. Pegboards are a practical way of demonstrating this.



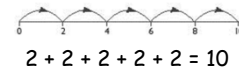
$5 \times 3 = 15$
 $3 \times 5 = 15$

Use home-made flexible array sheet.

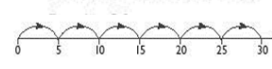


Number lines

Repeated addition can be shown on a number line.

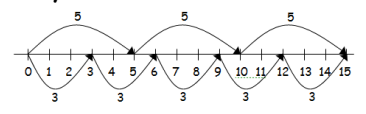


$2 + 2 + 2 + 2 + 2 = 10$

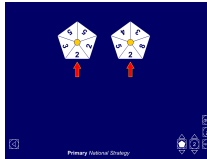


$5 + 5 + 5 + 5 + 5 = 30$

Commutativity can be shown on a number line. For example, children should know that 3×5 has the same answer as 5×3 . See also **arrays**.



Number Spinner ITP
Children spin the dials and multiply the digits together. Draw the image to match the calculation (e.g. an array or repeated addition on a number line).




Recording
Children will develop their understanding of multiplication and use jottings to support calculation.


Children can draw their own pictures of groups, e.g. 4×3 (see orange level).

Repeated addition

$5 + 5 + 5 + 5 + 5 + 5 = 30$




$10p + 10p + 10p + 10p + 10p = 50p$

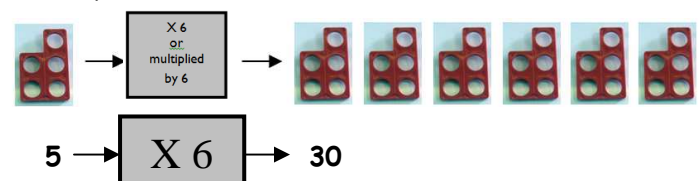


Arrays
Children can draw pictures of arrays. Arrays clearly show **commutativity**.

$3 \times 4 = 12$
 $4 \times 3 = 12$



Use function machines



$5 \rightarrow \boxed{\times 6} \rightarrow 30$

$5 + 5 + 5 + 5 + 5 + 5 = 30$
 $5 \times 6 = 30$
5 multiplied by 6
6 groups of 5
6 hops of 5

Missing number calculations
Missing digit problems, including those that require children to use multiplication and division as **inverse** operations.

$4 \times 4 = \square$ $7 \times 2 = \square$ $\square = 2 \times 7$
 $10 \times \square = 80$ $7 \times \square = 14$ $14 = \square \times 7$
 $\square \times 5 = 30$ $\square \times 2 = 14$ $14 = 2 \times \square$
 $\square \times \nabla = 14$ $14 = \square \times \nabla$

CHILDREN SHOULD NOT MOVE ON TO THE NEXT STAGE IF:

- they are not ready
- they are not confident