Willow Lane Progression in Written Multiplication

Reception Counting in equal groups

Children are encouraged to develop a mental image of the size of numbers. They learn to think about equal groups or sets of objects in practical, real life situations. Children may investigate resources such as egg boxes, baking trays or ice cube trays.

They may begin to record these situations using pictures.

A child's jotting showing fingers on each hand as a double.

A child's jotting showing double three as three cookies on each plate.

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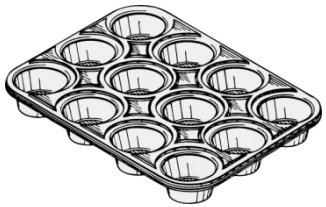
Year 1 Counting in equal groups to solve problems.

Children will continue to solve multiplication problems using practical equipment and jottings. They use the equipment to make equal groups of objects. Children should see everyday versions of arrays, e.g. egg boxes, baking trays, ice cube trays, wrapping paper etc. and use these in their learning, answering questions such as 'How many eggs would we need to fill the egg box? How do you know?'

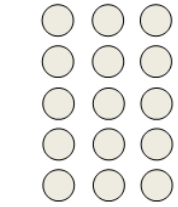


Year 2 Multiplying by repeated addition and arrays

Children understand that multiplication is repeated addition and that it can be done by counting in equal steps/groups.

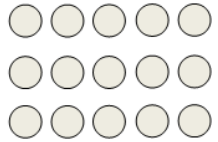
or

Children can then be introduced to the image of a rectangular array, initially through real items such as egg boxes, baking trays, ice cube trays, wrapping paper etc. and using these to show that counting up in equal groups can be a quicker way of finding a total.



3 + 3 + 3 + 3 + 3 = 15

Children also understand that multiplication is commutative, ie 3 x 5 is the same as 5 x 3.



5 + 5 + 5 = 15

Year 3

Multiplication by partitioning

To multiply TU x U, partition the 2 digit number and multiply both numbers by the unit.

```
  23
X  5
  15 (3 x 5)
 100 (20 x 5)
 115
```

Year 4

Expanded short multiplication

```
  28
X  4
  32 (8 x 4)
  80 (20 x 4)
 112
```

```
 Th H T U
    3 6 8
x       6
    4 8     (8 x 6)
  3 6 0     (60 x 6)
+ 1 8 0 0   (300 x 6)
  2 2 0 8
```

Year 5 Short multiplication

Expanded method moves to compact.
Labelled place value columns
Brackets for calculations at the side

```
 Th H T U
    3 6 8
x       6
  2 2 0 8
    4 4
```

Year 6 Long multiplication

```
  143
X  37
1001  (143 x 7)
4290  (143 x 30)
5291
```

Brackets helpful for modelling but not necessary for pupil to draw.

	40	6
50	2000	300
5	200	30