PROGRESSION THROUGH CALCULATIONS FOR MULTIPLICATION

MENTAL CALCULATIONS

Tables

Tables are taught everyday from Y1 onwards; children should then be able to use these to find other facts eg 30 x 7 = 210.

Rec / Yr 1 Introduces repeated addition and vocab "lots of", "groups of"
Year 2 2x, 5x, 10x and 3x, 4x
Year 3 As in Yr 2, plus 6x
Yr 4 Derive and recall all multiplication facts up to 10x10
Yrs5/6 Derive and recall **quickly** all multiplication facts up to 10x10

Multiplying by 10 or 100

Children should know that to x10, they should move digits one place to the left and to x100 they should move the digits 2 places to the left.

Partitioning

Children should be able to use partitioning and tables facts to work out multiplication questions mentally e.g.

34 x 6 30 x 6 = 180
4 x 6 = 24
180 + 24 = 204

WRITTEN CALCULATIONS

Reception

Children will count in 2s and 10s and begin to count in 5s. They will work on practical problem solving activities involving equal sets or groups.

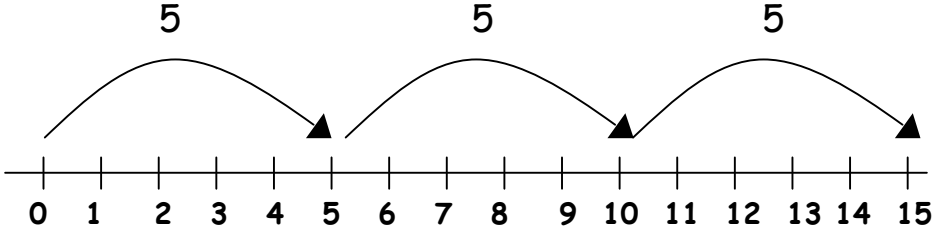
Y1/2

Children will start to use jottings to support calculation:

Repeated addition

3 times 5 is 5 + 5 + 5 = 15 or 3 lots of 5 or 5 x 3

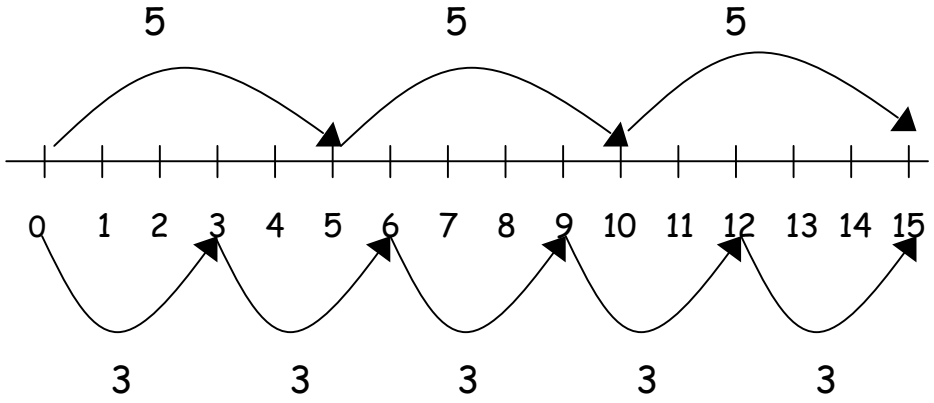
Repeated addition can be shown easily on a number line:



Y2/3

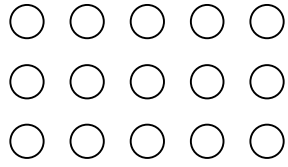
Commutativity

Children should know that 3 x 5 has the same answer as 5 x 3 but describes a different situation. This can also be shown on the number line.



Arrays

Children should be able to model a multiplication calculation using an array.



5 x 3 = 15

3 x 5 = 15

Scaling

e.g. Find a ribbon that is 4 times as long as the blue ribbon

5cm **20cm**

Y3/4

Using symbols to stand for unknown numbers to complete equations using inverse operations:

□ x 5 = 20 3 x △ = 18 □ x O = 32

Partitioning

38 x 5 30 x 5 = 150

8 x 5 = +40

= 190

Y4

Grid Method

23 x 8

Children will approximate first:

23 x 8 is approximately 25 x 8 = 200

x	20	3
8	160	24

160
+24
184

72 x 38

72 x 38 is approximately 70 x 40 = 2800

x	70	2
30	2100	60
8	560	16

2100
560
60
+ 16
2736

Y4/5

Children should be introduced to the **long method** for multiplication:

HTU x U

```
 346
  x9
  54  (9x6)
 360  (9x40)
2700  (9x300)
3114
```

TU x TU

```
  72
 x 38
  16 (8x2)
 560 (8x70)
  60 (30x2)
2100 (30x70)
2736
```

Y5/6

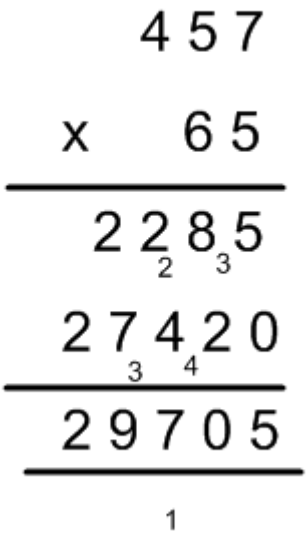
Children will develop the long method for multiplying bigger numbers ThHTU x U and HTU x TU and the **short method of multiplication** will be introduced.

```
   6 3 5
x      4
 2 5 4 0
   1 2
```

```
 4.90
   x3
14.70
  2
```

If one of the numbers contains a decimal point, then the decimal point travels directly down to where the answer is written.

This method is also used to multiply by more than one digit.



The place value

(457 x 5)

(457 x 60)