Multiplication

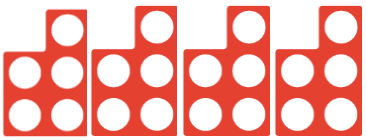
Early Years

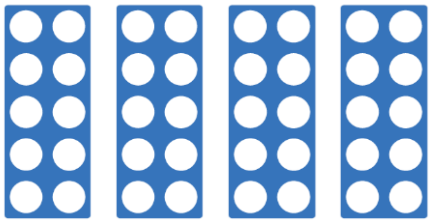
In Early Years there is a big emphasis on the children using practical materials as much as possible in everyday life experiences.

Through role play, toys, counters, cubes and Numicon the children make groups of/sets of objects.



They count in 2s, 5s and 10s using the Numicon and pegs.





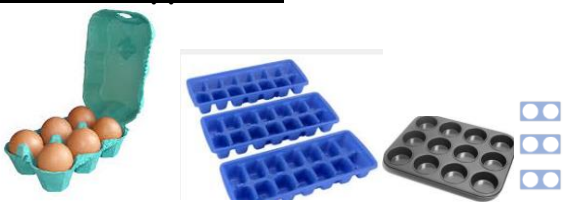
They learn to double to at least 5.

Year 1

Counting stick

Frequent practice is given in counting in twos, fives and tens from different multiples to develop their recognition of pattern in the number system using a counting stick. Hence the term *multiple* is introduced in Year 1.

Practical apparatus



Children continue to use Numicon in their maths work and other practical counting resources and everyday items to count on and back in twos, fives and tens.

They solve one-step problems involving multiplication, by calculating the answer using real life objects, pictorial representations and arrays with the support of the teacher.

Arrays

4 x 2

Number sentences

Children begin to write number sentences. (E.g. 3 x 2 =6 and 2 x 5 = 10)

Year 2

Counting Stick

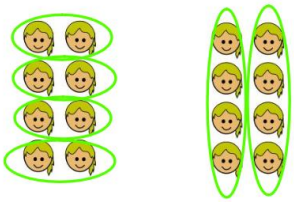
Children are taught to count in steps of 2, 3 and 5 from 0 and in 10s from any number, forwards and backwards using a counting stick.

Clock Face

A link is made with multiples of 5 and the clock face.

Arrays

They will learn that multiplication of two numbers can be done in any order (commutative). E.g. 4 x2 is the same as 2 x4. Arrays will be demonstrated.



4 x 2 2 x 4

Number sentences

Children will continue to develop their use of number sentences.
E.g. 6x3 =18

By the end of Year 2 the children should be able to recall and use multiplication facts for the 2, 3, 5 and 10 multiplication tables.

Year 3

Counting stick

They will count from 0 in multiples of 3, 6, 4, 8, 9, 50 and 100 from any number backwards and forwards on a counting stick.

Partitioning

They will multiply two digit numbers by one digit numbers using informal method of partitioning.

14 x 3

10 x 3 =30
4 x 3 =12 → 30 + 12 = 42

.

Missing Numbers

They will find missing numbers ☐ x 2 = 10 2 x ☐ = 10

Multiplying by 10 and 100

Children will learn what happens when a number is multiplied by 10 and 100 using place value.

H	T	u
hundreds	tens	units
2	2 8	8 0

Year 4

Counting Stick

Children count in multiples of 7, 25 and 1000 from any number backwards and forwards on a counting stick. (Multiples of 3, 6, 4 6, 8, 9 and 50 and 100 are also reinforced.)

Formal column short multiplication

They multiply two digit or three digit numbers by a one digit number using a formal written layout.
E.g.

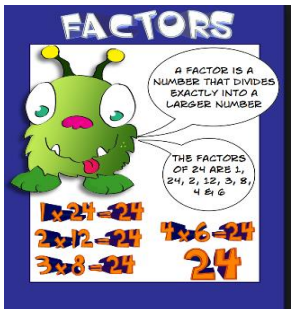
16 x
3

18 (6 x 3)
30 (10 x 3)
48

They are encouraged to approximate their answers.

Finding Factors

They are introduced to the term factor and find factors of numbers through their knowledge of multiplication facts.



They solve problems involving multiplying.
All children need to know their multiplication and division facts up to 12 x12 by the end of the year.

Year 5

Multiplying by 10, 100 and 1000

They learn how to multiply whole numbers and those involving decimals by 10, 100 and 1000 through place value.

Multiplication

Th	H	T	u	t	h	th	
thousands	hundreds	tens	units	tenths	hundredths	thousandths	
		2	8	3	4		×10
	2	8	3	4			
		3	1	0	6	9	×100
3	1	0	6	9			

The decimal point does NOT move. The numbers move to the left in multiplication,

Formal Column Multiplication

Use formal methods to multiply whole numbers up to 4 digits by one and two digit numbers.

Initially with brackets

126 ×
32

12 (6 x 2)
40 (20 x 2)
200 (100 x 2)
180 (6 x 30)
600 (20 x 30)
3000 (100 x 30)

4032

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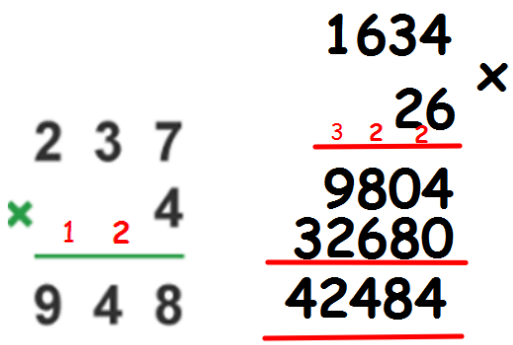
Formal long multiplication



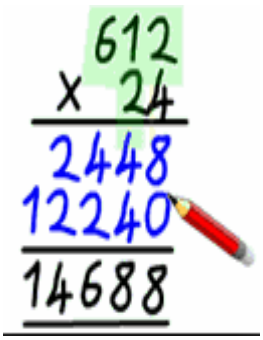
Squared and Cubed numbers

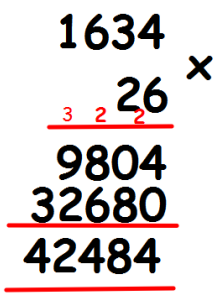
Recognise and use square numbers and cube numbers and the notation for squared (^{2}) and cubed (^{3})

Year 6

Formal Column Multiplication

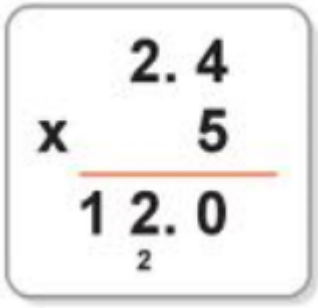
Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.





Formal Column Multiplication with decimals

Children are encouraged to approximate answers before multiplying one-digit numbers with up to two decimal places by whole numbers.



Consolidate written and mental methods from Year 5.