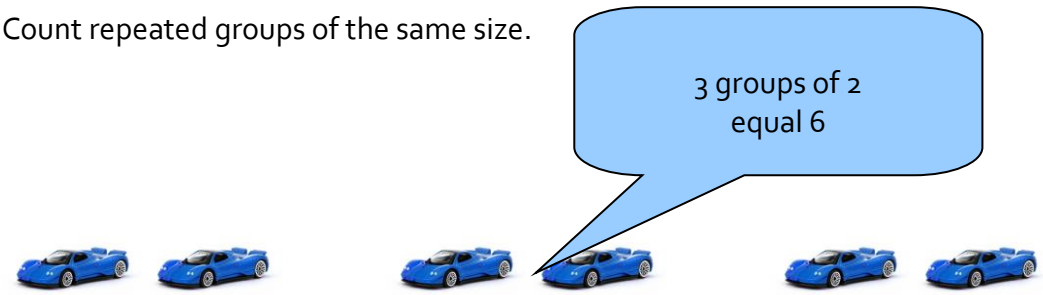
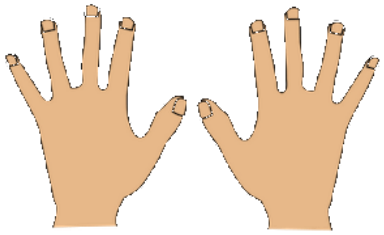
MULTIPLICATION ×

EYFS

Children will engage in a wide variety of songs, rhymes, games and activities. In practical activities and through discussion they will begin to solve problems involving doubling.

Count repeated groups of the same size.





Counting in 2s, 5s and 10s.

Key Vocabulary

Lots of, groups of.

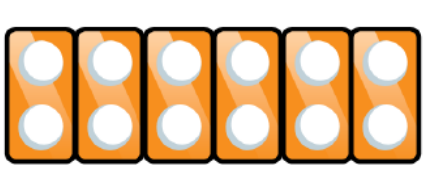
Key skills for addition at EYFS

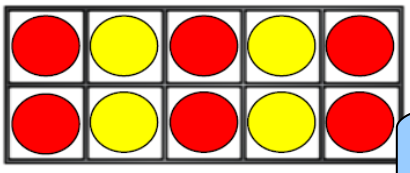
- Solve problems, including doubling,

MULTIPLICATION ×

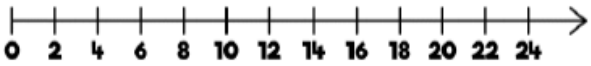
Year 1

Children will count repeated groups of the same size in practical contexts. They will use the vocabulary associated with multiplication in practical contexts.
They will solve **practical problems** that involve combining groups of 2, 5 or 10. E.g. socks, fingers and cubes. Children will be exposed to multiple representations to build the concept of multiple groups of.

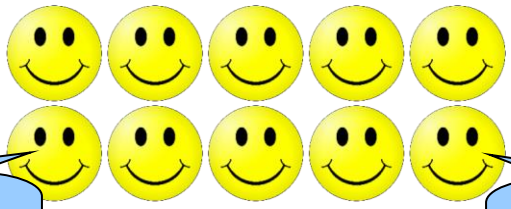




'Six pairs of socks. How many socks altogether? 2, 4, 6, 8, 10, 12'



Use arrays to support early multiplication



'Five groups of two faces. How many faces altogether? 2, 4, 6, 8, 10'

Two groups of five faces. How many faces altogether? 5, 10'

Key Vocabulary

Multiply, times, lots of, groups of

National Curriculum requirements

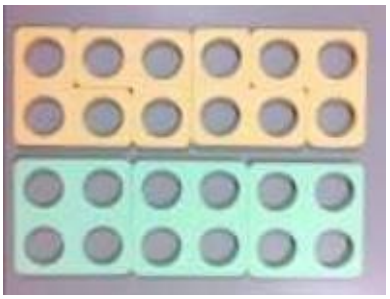
- Count in multiples of 2, 5 and 10
- Recognise doubles to double 6
- Solve simple one-step problems involving multiplication and division, calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.

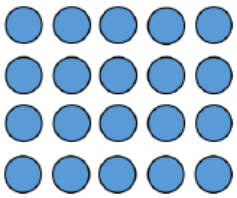
MULTIPLICATION

Year 2

Starting from zero, make equal jumps on a number line to work out multiplication facts and write multiplication sentences. Children can skip count with the 2,3, 5 and 10s.

Use arrays, Numicon and visual representations to help with calculations and to teach children to understand the commutative law of multiplication.

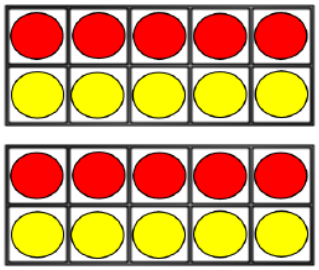


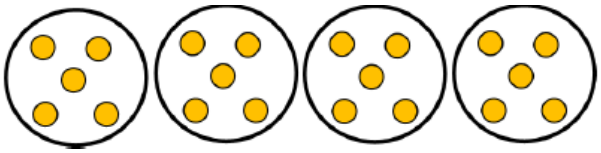


$5 + 5 + 5 + 5 = 20$

$4 \times 5 = 20$

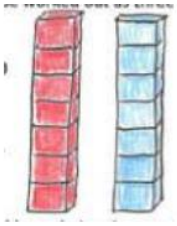
$5 \times 4 = 20$





Use repeated addition on an empty number line: 6 x 5 = 30

Learn doubles to double 20
Begin to double multiples of 5 to 100
Begin to double two-digit numbers less than 50 with 1s digits of 1, 2, 3 4 or 5
22 x 2 = ☐



Key Vocabulary

groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, sets of, equal groups, times as big as, once, twice, three times…

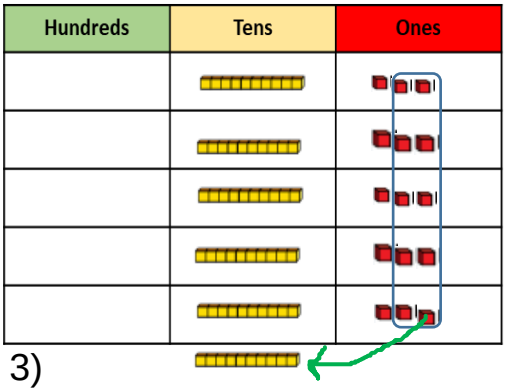
National Curriculum requirements

- Count in steps of 2, 3 and 5 from zero and in 10s from any number
- Know the 2X, 5X and 10X tables and begin to say how many 10s are in 40 or how many 5s are in 30; recognise odd and even answers
- Write and calculate number statements using x and = signs
- Show that multiplication can be done in any order
- Solve a range of problems involving multiplication, using concrete objects, arrays, repeated addition, Numicon, mental methods and multiplication facts.

MULTIPLICATION

Year 3

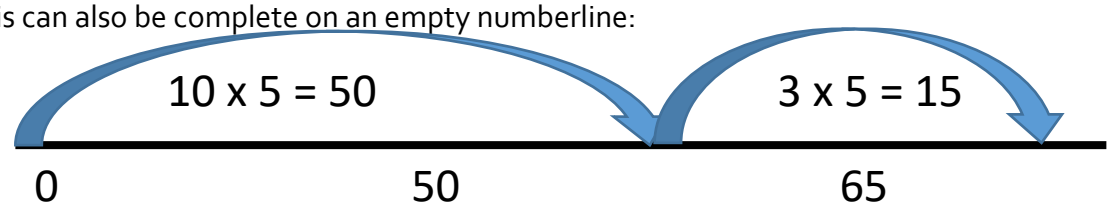
Children continue to use practical manipulatives to show multiplication as groups of using Dienes, Numicon and place value counters.



Partitioning method is used for multiplication of a teen number by a one-digit number:

13 x 5 = 65 (Partition 13 into 10 + 3)
10 x 5 = 50
3 x 5 = 15
50 + 15 = 65

This can also be complete on an empty numberline:



This will lead into expanded short multiplication:

14 x 8 = 112

```
  14
 x8
 32    (8 x 4)
 80    (8 x 10)
112
```

Children continue to use arrays where appropriate, for example when working with money.


```
  13p
x  3
  9p (3x3p=9p)
 30p (3x10p=30p)
 39p
```

Key Vocabulary

groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, sets of, equal groups, times as big as, once, twice, three times..., partition, multiple, product, tens, units, value

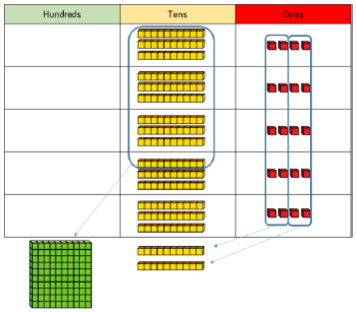
National Curriculum requirements

- Understand that multiplication is commutative, e.g. 4 x 8 is the same as 8 x 4.
- Know the 2x, 3x, 4x, 5x, 8x, 10x. All tables need to be learned to 12th multiple.
- Multiply any 2-digit number by 10 or a single-digit number by 100;
- Understand the effect of multiplying whole numbers by 10 and 100.
- Multiply a 1 digit number by a 2 digit number starting to use the expanded written method.
- Solve multiplication problems involving missing numbers

MULTIPLICATION

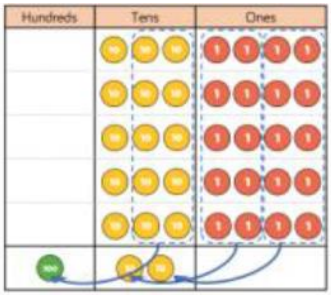
Year 4

Children continue to explore and refine the method of expanded short multiplication, moving into short multiplication methods. Children will continue to use mathematical manipulatives to further strengthen conceptual understanding.



34 x 5 = 170

	H	T	O	
		3	4	
×			5	
		2	0	(5 × 4)
+	1	5	0	(5 × 30)
	1	7	0	



Children will refine the recording of the expanded short multiplication where appropriate and lead on to short multiplication (formal method) of a three–digit number multiplied by a one- digit number when they are ready:

	H	T	O	
		3	4	
×			5	
	1	7	0	
	1	2		

Use the language of place value to develop understanding. Ensure that the digit 'carried over' is written under the line in the correct column.

Children will begin to apply their formal written method to problems involving money:

£	2	. 6	5	
×			5	
£ 1	3	. 2	5	
	3	2		

"I would like to buy 5 magazines costing £2.65, how much money do I need?"

Remind children that the single digit belongs in the ones column.
Line up the decimal points in the question and the answer

Key Vocabulary

groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, sets of, equal groups, times as big as, once, twice, three times..., partition, multiple, product, tens, units, value, inverse

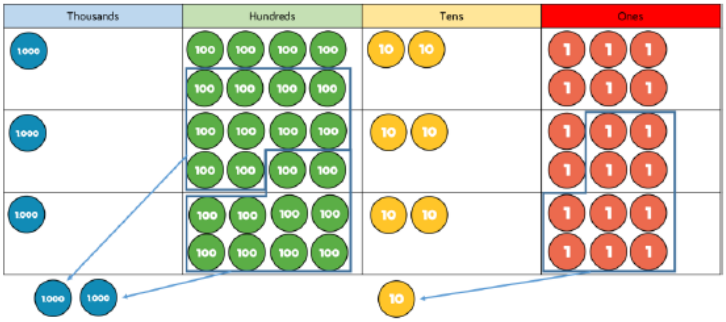
National Curriculum requirements

- Multiply 1 and 2 digit numbers by 10, 100 and 1000; to understand place value in decimal numbers with one place.
- Know and recite all the times tables up to 12th multiple; include multiplying by 0 (e.g. 5 x 0 = 0, 7 x 0 = 0) or by 1 (e.g. 5 x 1 = 5, ½ x 1 = ½).
- Multiply 1- digit numbers by 2-digit or friendly 3-digit numbers using expanded written method and begin to use the formal written method.
- Find doubles to double 100 and beyond, using partitioning
- Begin to double amounts of money
- Use doubling as strategy for multiplying by 2, 4, 8
- Count in multiples of 6, 7, 9, 25 and 1000

MULTIPLICATION

Year 5

In year 5, children will move towards more complex numbers. Initially, they will refine the method from year 4 by multiplying 4 digit numbers by a single digit, then move on to multiplying by 2 – digit numbers.



	Th	H	T	O
	1	8	2	6
×				3
	5	4	7	8
	2		1	

Once again, the language of place value is revised to ensure understanding. The digit that is 'carried over' is written under the line in the correct column.

HTH	TTH	TH	H	T	0
		7	2	3	0
	X			2	1
		7	2	3	0
1	4	4	6	0	0
1	5	1	8	3	0

7230 x 1 on the 1st row

7230 x 20 on the 2nd row.

Show multiplying by 10 by putting zero in ones column first.

Key Vocabulary

groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, sets of, equal groups, times as big as, once, twice, three times..., partition, multiple, product, tens, units, value, inverse, square, factor, integer, decimal, short/long multiplication, 'carry'

National Curriculum requirements

- Know and recite all times tables including division facts.
- Multiply 2- and 3-digit numbers by numbers ≤12 ; multiply
- 2-digit by 2-digit numbers.
- Identify multiples and factors, using knowledge of multiplication tables up to 12 x 12
- Scale up or down by a factor of 2, 5 or 10
- Multiply integers and decimals by 10, 100, 1000
- Recognise and use squared, cubes and their notations

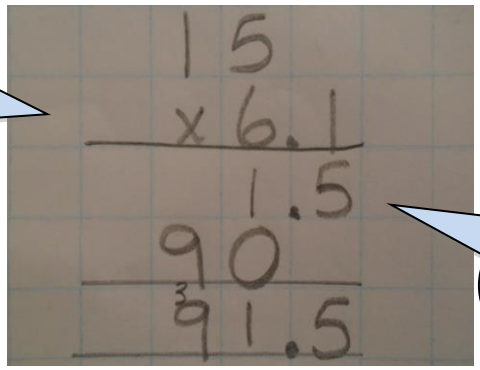
MULTIPLICATION

Year 6

In year 6, children will use short and long multiplication, as in year 5, and multiply decimals with up to 2 decimal places by a single digit.

TTh	Th	H	T	O
	2	7	3	9
×			2	8
2 (2)	1 (5)	9 (3)	1 (7)	2
5 (1)	4	7 (1)	8	0
7	6	6	9	2
		1		

Remind the children of the importance of place value in all numbers displayed.



Line up the decimal points in the question and the answer.

Key Vocabulary

groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, sets of, equal groups, times as big as, once, twice, three times…, partition, multiple, product, tens, units, value, inverse, square, factor, integer, decimal, short/long multiplication, 'carry', tenths, hundredths, decimal

National Curriculum requirements

- Recall multiplication facts up to 12 x 12
- Use short multiplication to multiply a 1-digit number by a number with up to 4 digits
- Use long multiplication to multiply a 2-digit by a number with up to 4 digits
- Use short multiplication to multiply a 1-digit number by a number with one or two decimal places, including amounts of money.
- Multiply fractions and mixed numbers by whole numbers.
- Multiply fractions by proper fractions.
- Use percentages for comparison and calculate simple percentages.
- Estimate answers using rounding and approximation