Multiplication

factor x factor = product

multiplier (number of equal groups) x multiplicand (number in each group) = product

In Key Stage 1, multiplication is taught through looking at equal groups.

Equal groups



Repeated addition

<u>Year 2</u>

Children learn that repeatedly adding the same number means that they can be grouped together. It is vital that children understand this concept as it underpins all later multiplication that they will come across.



Following this learning in Key Stage 1, the curriculum then splits into two strands of multiplication:

- 1. learning times-tables facts
- 2. multiplying larger numbers

These are taught as separate topics. Times-tables are always taught first as children must be secure in these to be able to access the larger number multiplications.

1. Learning times-table facts

The following table summarises which times-tables are taught in each year group for the first time. Each year the children should continue to practise those learnt in the previous year groups.

Year 1	None - the focus is on securing addition and subtraction facts	
Year 2	2s, 5s and 10s	
Year 3	3s, 4s and 8s	
Year 4	6s, 7s, 9s, 11s and 12s	
Year 5	No new content taught but children should be constantly revising all tables up to 12x12 to ensure they are fluent. This is essential for work on	
Year 6	narder multiplication, fractions and decimals.	

Similar strategies are used across all year groups to ensure that children have a deep understanding of how times-tables work and how to calculate them efficiently.

Multiplication as equal groups

As they learnt in year 2, children must continue to make links between "equal groups of ..." and multiplication. They should be able to identify this in images.



Skip counting

Children should learn to count up in multiples of each number. This is a useful strategy for becoming familiar with each of the times-tables but is a very slow and inefficient strategy so children need to quickly move away from it.



Equal groups within times-tables

Once children are confident with the above strategies, they should be explicitly taught that times-tables increase / decrease by equal amounts each time. This becomes an efficient calculation strategy as children can use a known fact and then add or subtract a group. Concrete resources and pictures are heavily used to support this thinking.



Distributive law

This law is based on the idea that numbers are made up of other numbers (taught in Early Years Foundation Stage). If children know that 7 is made up of 5 and 2, then they can extend this to 7 groups of ______ is made up of 5 groups of ______ and 2 groups of ______. Different colours are used on the images to highlight this concept to the children.

It is taught first with times-tables as a useful strategy for using something you know to find out something that you don't. This strategy is also taught when multiplying larger numbers (see below)



2. <u>Multiplying larger numbers</u>

Distributive law (partitioning)

The children have already been exposed to this strategy when learning it as an efficient way to calculate their times-tables. Now they will learn to apply this to larger numbers to support their calculations. Typically, the larger numbers are split by their place value and then each of these parts is multiplied.

<u>Year 3</u>	Year 4	<u>Year 5</u>
In year 3, the partitioning strategy	Starting with familiar multiplication questions and then moving	In year 5, children continue to use this strategy, first



= 2400 = 240 = 96 = 2736	$100 \times 24 = 2400$ $10 \times 24 = 240$ $4 \times 24 = 96$ $114 \times 24 = 2736$	$300 \times 31 = 9300$ $20 \times 31 = 620$ $320 \times 31 = 9920$	100 100 100 10 10	20 × 113 = 2260 3 × 113 = 339 23 × 113 = 2599
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Written strategies

The main written strategy for solving multiplication problems is **column multiplication**. This should only be used when the calculation is too difficult to solve mentally.

Year 3 Teaching begins with 2-digit numbers. Concrete resources (Dienes) are always used to support understanding. Children start by multiplying a 2-digit by a 1-digit number where there is no renaming. The expanded method is primarily taught to support their understanding of place value.	Year 4 Teaching begins with a recap of their learning from year 3. This focuses on 2-digit x 1-digit and moving towards the compact method (whilst always ensuring a good understanding of the expanded alongside).	Year 5 Teaching starts by recapping learning from previous year groups when multiplying 2, 3 and also 4-digit numbers by a 1-digit number. 2718 \times 4 32 2 3 40 2×3
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Next, they move onto multiplying a 2-digit number	1 3 8	



