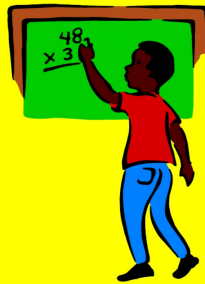
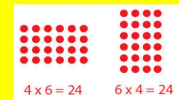


Multiplication



Vocabulary you may need:

Array: An array is a arrangement of objects, usually in rows and columns



Factor: Two numbers that multiply to make a given number.
Example: factors of 12 are 1, 2, 3, 4, 12

Mutiple: a number that is in the x tables. Example: multiples of 3 = 3,6,9,12,15,18,21.

Product: is the answer when two numbers are multiplied together. Example: the product of 6 and 4 is 24.

Prime number: a number with factors are 1 and itself. Example: 19 - Factors 1 and 19.

Mental Strategies for Multiplication

To multiply successfully, children need to be able to:

- understand multiplication as repeated addition group objects and count up in different amounts
- record repeated addition as arrays and on empty number lines
- understand how to multiply numbers by multiples of 10,100 and 1000.
- know their times tables/ division facts to 12 x 12 (YEAR 4)

Times tables are the key to everything!

Multiplication and division facts.

Year 1: start counting in 2, 5, 10

Year 2: Count in steps of 2, 3, and 5 from 0
multiplication and division : 2, 5, 10

Year 3: Count in multiples of 4, 8, 50, 100
multiplication and division : 3, 4, 8

Year 4: Count in multiples of 6, 7, 9, 25, 100
multiplication and division tables up to 12 x 12

Year 5: Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 and multiply and divide numbers mentally drawing upon known facts.

Year 6: Identify common factors, common multiples and prime numbers

By the end of KS1

- Children count in 2s, 3s, 5s and 10s
- They use objects, money, stories and songs to learn these
eg socks, playing shop keeper counting out 2ps
- They understand how to record as repeated addition
- Eg $2 + 2 + 2 + 2 = 8$
or 4 lots of 2 make 8
or $4 \times 2 = 8$ *this is where they learn the x sign*

By the end of KS2

In KS2 the aim is that children develop rapid recall of all times tables/division to 12 x 12 and can use an efficient written method for:

■ two-digit by one-digit multiplication by the end of Year 4 (TU x U) 53×2

■ three by two-digit multiplication by the end of Year 5 (HTU x U and TU X TU)
 232×4 58×24

■ three-digit by two-digit multiplication by the end of Year 6 (THTU x TU)

Stage 1:

Written methods for Multiplication

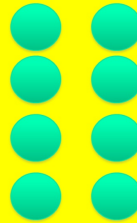
Initially multiplication is introduced as 'repeated addition' using vocabulary such as 'lots of' or 'groups of' and real objects or pictures.



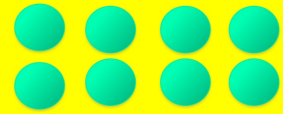
$$3 \text{ lots of } 3 = 9 \text{ leading to } 3 \times 3 = 9$$

Stage 2:

By the end of KS1



$$2 \times 4$$



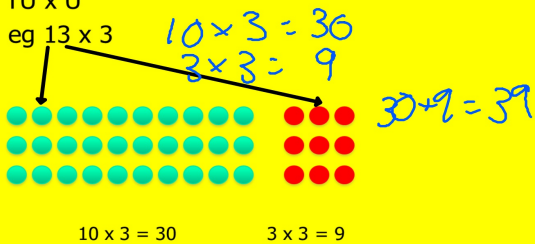
$$4 \times 2$$

Arrays

Stage 3 expectation:

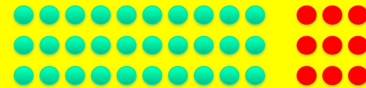
- Understand how to use partitioning and arrays to solve TU x U

eg 13×3



Stage 4: Grid method

$$13 \times 3$$

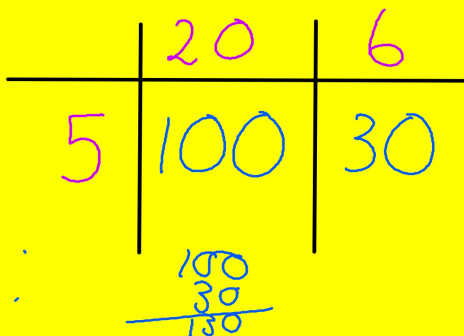


x	10	3
3	30	9

$$30 + 9 = 39$$

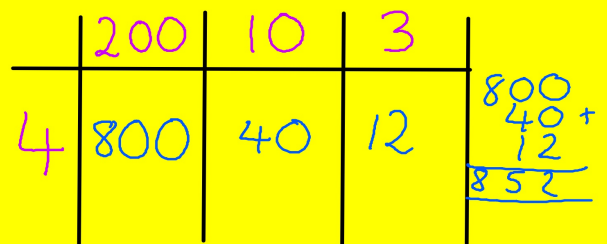
Stage 4: Grid method

$$26 \times 5$$



Stage 4: Grid method

$$213 \times 4$$



Stage 4: Grid method

$$53 \times 24$$

	50	3
20	1000	60
4	200	12

1000
2000
600
120
1272

Stage 5: standard

$$26 \times 5$$

$$\begin{array}{r} 26 \\ \times 5 \\ \hline 130 \\ \hline \end{array}$$

$$226 \times 5$$

$$\begin{array}{r} 226 \\ \times 5 \\ \hline 1130 \\ \hline \end{array}$$

Stage 5: standard

$$26 \times 15$$

$$\begin{array}{r} 26 \\ \times 15 \\ \hline 130 \\ 260 \\ \hline 390 \end{array}$$

$$226 \times 15$$

$$\begin{array}{r} 226 \\ \times 15 \\ \hline 1130 \\ 2260 \\ \hline 3390 \end{array}$$