

Curriculum 2014 Statutory Requirements

Pupils should be taught to:

Birth –to 11 months – notice changes in number of objects / images, sounds in groups of and up to 3

8-20 months - has some understanding that things exist even when out of sight

16-26 months – Begins to organise and categorise objects -sorting

22-36 months – knows that a group of things changes in quantity when something is added or taken away

30-50 – shows an interest in number problems

40-60 – counts objects to 10 and is beginning to count beyond 10.


In practical activities and discussions begins to use the vocabulary involved with multiplying

Verbally count in steps

1 Singing songs

Nursery Rhymes


Two, four, six, eight,
who do we appreciate?





One, two, buckle my shoe,
three, four open the door,
five, six, pick up sticks,
seven, eight, lay them straight.

Practically count in groups

2 Without number sentence



Teaching Points

Use number lines 0-10

Explore numbers in the environment inside and out

Use a range of objects

Modal in role play areas

Start introducing the idea of doubling

Vocabulary

Group of, lots of, count,

Curriculum 2014 Statutory Requirements

Pupils should be taught to:


Early Learning Goal Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.

Practically count in groups and use pictorial representations

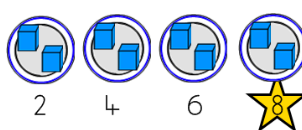
$$2 \times 4 = 8$$

1 Counting in steps

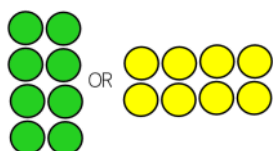
" 2, 4, 6, 8 "



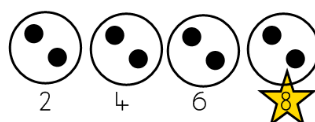
2 Practically counting in groups



3 Drawing using arrays



4 Drawing using symbols



Teaching Points

Use number lines 0-10

Explore numbers in the environment inside and out

Sharing snack to reinforce the understanding of groupings.

Encourage children to draw or make arrays using counters.

Use a range of objects

Modal in role play areas including doubling.

Experience doubling in a variety of contexts

Vocabulary

Group of, lots of, count, **double**, **times**, **array**

Curriculum 2014 Statutory Requirements

Pupils should be taught to:

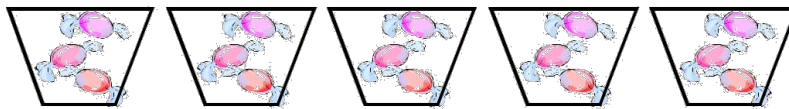
Solve one-step problems involving multiplication, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.

Pupils build on learning in the foundation state and ensure a clear understanding of the concept of doubling.



Using concrete objects, image representations and the of physical and/or images of arrays, pupils solve problems such as:

There are 3 sweets in a bag. How many sweets are there in 5 bags?



2x, 5x and 10 times tables

Ensure that pupils experience contextual links such as:



Teaching Points

Make connections between arrays and number patterns

Counting 2x 5x and 10x

Use talking tins or ipads to record problems.

Support problems using images.

Vocabulary

Group of, lots of, array, count, double, times, multiply, multiplied by once, twice three times. Four times, five times ... ten times, repeated addition,

Curriculum 2014 Statutory Requirements

Pupils should be taught to:

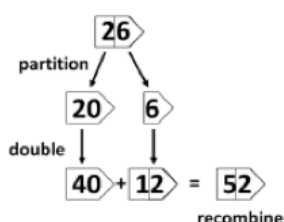
Recall and use multiplication facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers

Calculate mathematical statements for multiplication within the multiplication tables and write them using the multiplication (×) and equals (=) signs

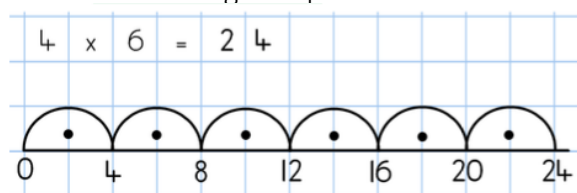
Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot

Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.

Pupils recall and use the 2x, 5x, 10x, begin to count in 3s and 4s and start to use doubling to progress onto 6x



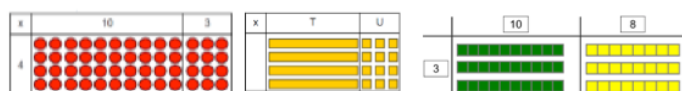
Build on their understanding of repeated addition.



Progress on to a simple grid.

x	3
10	30
4	12
42	

Grid method



Pupils explore, practically, commutative multiplication facts showing that the same product is produced.

Teaching Points

Modal practically with place value arrow cards to model multiplication steps.

When introducing grid method, referring to it as such, modal initially alongside partitioning strategy.

Note appropriateness of number where numbers remain initially in 'teens' to strengthen ability to multiply a digit by 10. Method is supported by visual representations.

Varied fluency to include:

- $2 \times 3 =$
- $2 \times 30 =$
- $2 \times 300 =$
- $20 \times 3 =$
- $200 \times 3 =$

Vocabulary

Group of, lots of, array, count, double, times, multiply, multiplied by once, twice three times. Four times, five times ... ten times, repeated addition, **multiplication**,

Curriculum 2014 Statutory Requirements

Pupils should be taught to:

Recall and use multiplication facts for the 3, 4 and 8 multiplication tables

Write and calculate mathematical statements for multiplication using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to written methods

Solve problems involving missing number problems involving multiplication including positive number scaling problems and correspondence problems where n objects are connected to m objects.

Pupils recall and use the 2x, 5x, 10x, 3x, 4x, 6x 8x

Pupils build on their doubling skills of the 2x to find 4x then 4x to find 8x.

Children build on their understanding of the grid method to solve problems such as 23×3

x	3
20	60
3	9
	69

$$\begin{array}{r}
 23 \\
 \times 3 \\
 \hline
 9 \text{ (3x3)} \\
 60 \text{ (20x3)} \\
 \hline
 69
 \end{array}$$

When calculating a calculation such as 43×2 , modal and discuss appropriateness of approach and referring to doubling. Progress and modal doubling and doubling again when finding 4x.

Teaching Points
Promote high expectations of table knowledge

Ensure children are confident at partitioning. Use brackets to support children moving to this method.

Modal grid method along side short method. Use brackets to support transition from grid to column.

Variation ideas

$$\begin{array}{l}
 9 \times 8 = \\
 9 \times 80 = \\
 9 \times 800 = \\
 90 \times 8 = \\
 900 \times 8 = \\
 ? = 900 \\
 \times 8 \ 72 \\
 = ? \times 8
 \end{array}$$

Vocabulary

Group of, lots of, array, count, double, times, multiply, multiplied by once, twice three times. Four times, five times ... ten times, repeated addition, **multiplication**, **product**,

Curriculum 2014 Statutory Requirements

Pupils should be taught to:

Recall and use multiplication facts for multiplication tables up to 12 x 12

Use place value, known and derived facts to multiply mentally, including: $x0$ $x1$ and multiplying together three numbers

Recognise and use factor pairs and commutatively in mental calculations

Multiply two-digit and three-digit numbers by a one-digit number using formal written layout

Solve problems involving multiplying, including the distributive law to multiply two-digit numbers by one-digit including positive number scaling problems and correspondence problems where n objects are connected to m objects.

Pupils recall and use table facts up 12x12

Expanded column multiplication

1 TO x O with brackets

$$\begin{array}{r} 34 \\ \times \quad 3 \\ \hline 12 \\ 90 \\ \hline 102 \end{array}$$

(4 x 3)
(3 0 x 3)

2 TO x O

$$\begin{array}{r} 34 \\ \times \quad 3 \\ \hline 12 \\ 90 \\ \hline 102 \end{array}$$

3 HTO x O

$$\begin{array}{r} 234 \\ \times \quad 3 \\ \hline 12 \\ 90 \\ 600 \\ \hline 702 \end{array}$$

Compact column multiplication

4 HTO x O

$$\begin{array}{r} 234 \\ \times \quad 3 \\ \hline 702 \end{array}$$

Cross out once used!

Teaching Points

Continue to secure short method moving to 3 digit numbers.

Ensure appropriateness of number.

Vocabulary

Group of, lots of, array, count, double, times, multiply, multiplied by once, twice three times. Four times, five times ... ten times, repeated addition, multiplication, product,

Curriculum 2014 Statutory Requirements

Pupils should be taught to:

Identify multiples and factors: all factor pairs of a number, common factors of two numbers, establish whether a number up to 100 is prime and recall prime numbers up to 19

Multiply numbers up to four digits by a one- or two-digit number using a formal written method

Multiply whole numbers and those involving decimals by 10, 100 and 1000.

Children build on their understanding of short multiplication to use long multiplication to multiply by 2 digit numbers.

Short column multiplication

1 THHTO x O

	2	5	6	4
x				3
	7	6	9	2

Cross out once used!

Long column multiplication

2 TO x TO

		6	4	
x	2	3		
		1	9	2
	1	2	8	0
	1	4	7	2

3 HTO x TO

		5	6	4	
x		2	3		
		1	6	9	2
	1	2	8	0	
	1	2	9	7	2

4 THHTO x TO

		2	5	6	4
x				2	3
		7	6	9	2
	5	1	2	8	0
	5	8	9	7	2

Children begin to use their understanding to multiply decimal numbers within the context of money. Use coins to support children's understanding.

x	£20	£3	60p	7p	
3	£60	£9	£1.80	21p	= £71.01

Teaching Points

Children should be exposed to regular tables practise.

Ensure appropriateness of number. Starting with multiplying by a teens number before moving on to other 2 digit numbers. Those pupils needing support can revert back to the grid method but should progress to a formal expanded method as soon as possible. Use brackets to support this transition.

Variation examples should include decimals.

Children begin to estimate their answers

Vocabulary

Group of, lots of, array, count, double, times, multiply, multiplied by once, twice three times. Four times, five times ... ten times, repeated addition, multiplication, product,

Curriculum 2014 Statutory Requirements

Pupils should be taught to:

Identify multi-digit numbers up to 4 digits by a two-digit number using formal, long multiplication

Identify common factors, common multiples and common prime numbers

Use their knowledge of the order of operations to carry out calculations involving the four operations

Children progress to multiplying decimals by a whole number and decimals by decimals.

Short column multiplication

Long column multiplication

1 Multiplying an integer by a decimal

	1	3	•	8	5
x		5			
	6	9	•	2	5

Context of money
e.g. £13.85 x 5 = £69.25

2 THHTO x TO

	2	5	6	4	
x			2	3	
	7	6	9	2	
	5	1	2	8	0
	5	8	9	7	2

Cross out once used!

3 Decimal x TO

		2	•	4	9
x	2	4			
		9	•	9	6
	4	9	•	8	0
	5	9	•	7	6

4 Decimal x decimal, e.g. 2.49 x 4.3

		2	4	9	
x		4	3		
		7	4	7	
		9	9	6	0
	1	0	7	0	7

Take decimal points out

Multiply

Count total decimal places from original numbers

Add decimal point back in

2	•	4	9		
x		4	•	3	

(3d.p.)

1	0	•	7	0	7
---	---	---	---	---	---

My answer should be around 600 as I know that 20 x 30 equals

Q. 21 x 32 =

Teaching Points

Children should be exposed to regular tables practise and recall associated facts.

Children should know how to use multiplication as the inverse for division to check answers.

Children should progress onto finding missing numbers in calculations.

Children should use rounding to estimate answers.

Children should be exposed to multiplication problems in a variety of real life contexts.

Vocabulary

Group of, lots of, array, count, double, times, multiply, multiplied by once, twice three times. Four times, five times ... ten times, repeated addition, multiplication, product, **long multiplication**, **short multiplication**.