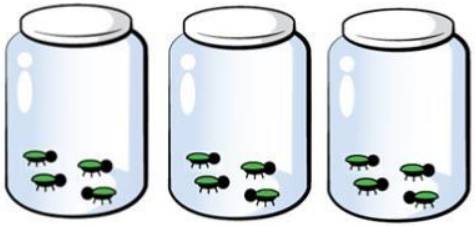
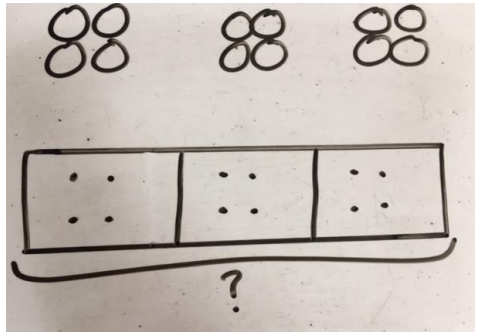
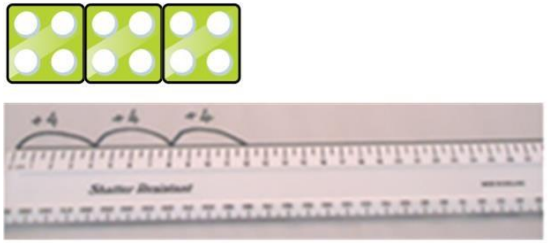
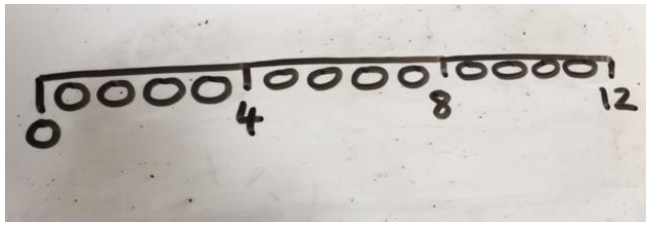
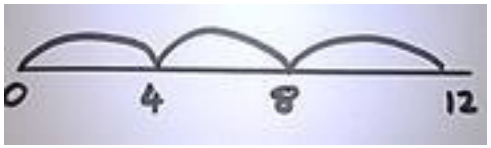
Calculation policy: Multiplication

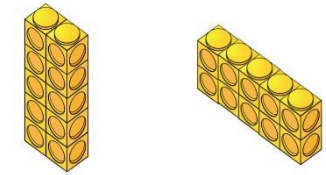
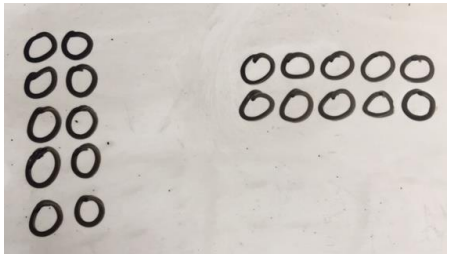
Key language: double, times, multiplied by, the product of, groups of, lots of, equal groups.

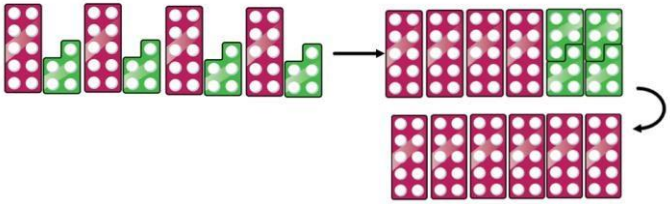
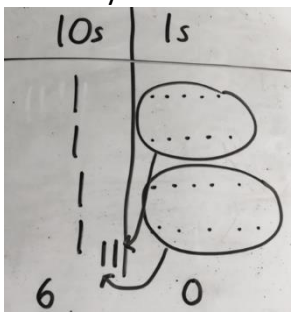
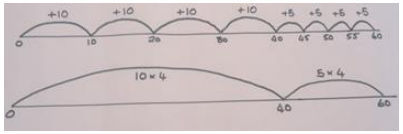
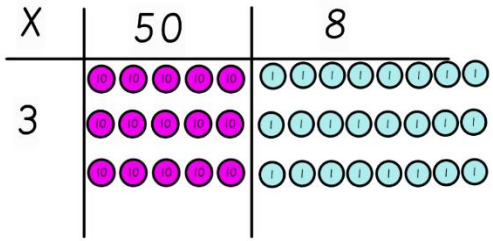
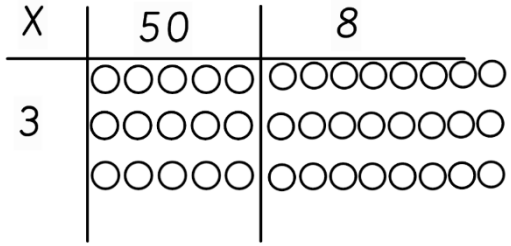
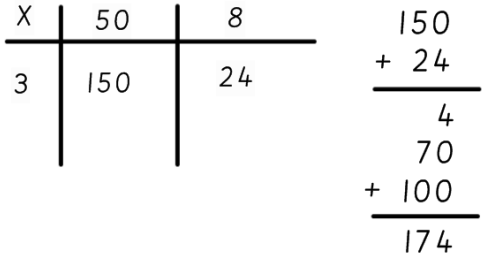
Duxford Church of England Community Primary School

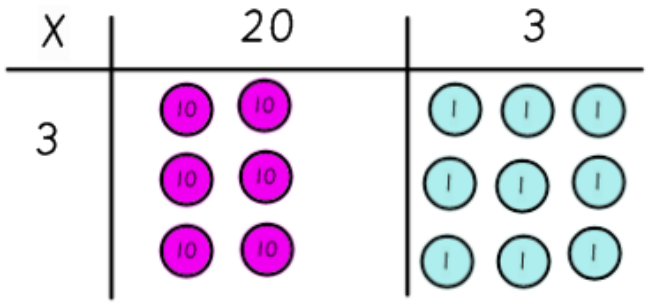
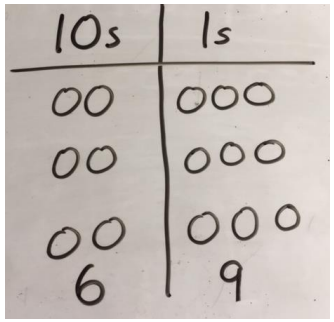
Calculation Policy adapted from White Rose Maths HubProgression in Calculations – supported with a rich use of vocabulary and discussion throughout using 'stem sentences'

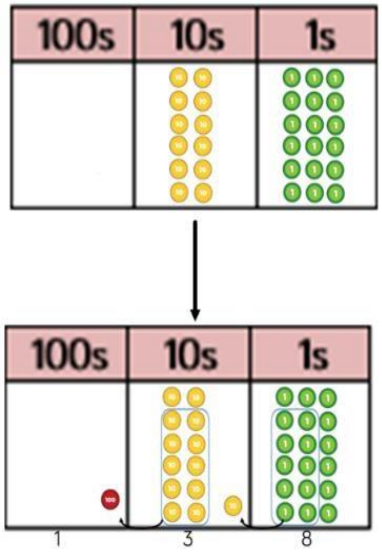
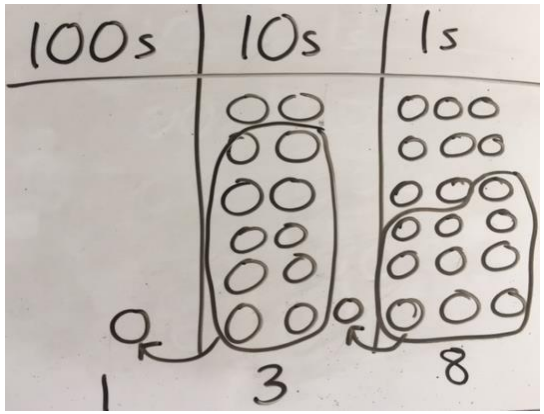
Concrete/ Build it	Pictorial /Draw it	Abstract / Write it/ Say it
Repeated grouping/repeated addition 3 × 4 4 + 4 + 4  There are 3 equal groups, with 4 in each group. 	Children to represent the practical resources in a picture and use a bar model. 	3 × 4 = 12 4 + 4 + 4 = 12 Say it: 3 groups of 4 is 12

Number lines to show repeated groups-  3 × 4 Cuisenaire rods can be used too.	Represent this pictorially alongside a number line e.g.: 	Abstract number line showing three jumps of four. 3 × 4 = 12 Say it: When I jump on 4 three times, I land on 12. 

Use arrays to illustrate commutativity counters and other objects can also be used. 2 × 5 = 5 × 2 	Children to represent the arrays pictorially. 	Children to be able to use an array to write a range of calculations e.g. 10 = 2 × 5 5 × 2 = 10 2 + 2 + 2 + 2 + 2 = 10 10 = 5 + 5 Say it: multiplication is commutative; it can be done in any order.

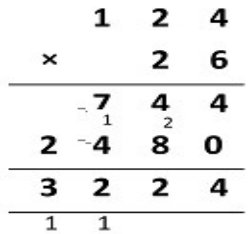
Partition to multiply using Numicon, base 10 or Cuisenaire rods. 4 × 15 	Children to represent the concrete manipulatives pictorially. 	Children to be encouraged to show the steps they have taken. 4 x 15 10 5 10 x 4 = 40 5 x 4 = 20 40 + 20 = 60  A number line can also be used Say it: 15 is the whole. 10 is a part, 5 is a part. 4 groups of 10 are 40. 4 groups of 5 are 20. 4 groups of 15 are 60
Children will continue to use arrays where appropriate leading into the grid method. 	Children to represent the concrete manipulatives pictorially. 	Children to record what it is they are doing.  Say it: 58 is the whole, 8 is a part, 50 is a part. 3 groups of 8 are 24 3 groups of 50 are 150. Three groups of 58 are 174

Formal column method with place value counters (base 10 can also be used.) 3 × 23  	Children to represent the counters pictorially.  	Children to record what it is they are doing to show understanding. Say it: 3 groups of 3 are 9. 3 groups of 20 are 60. 3 groups of 23 are 69 3 × 23 20 3 3 × 20 = 60 3 × 3 = 9 60 + 9 = 69 23 × 3 69

Formal column method with place value counters. 6 x 23  	Children to represent the counters/base 10, pictorially e.g. the image below.  Say it: 18 ones are 1 ten and 8 ones. 13 tens are 1 hundred and 3 tens.	Formal Method. 6 x 23 = 23 × 6 138 1 1

When children start to multiply 3d × 3d and 4d × 2d etc., they should be confident with the abstract:

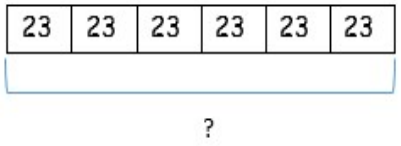
To get 744 children have solved 6 × 124.
To get 2480 they have solved 20 × 124.



Answer: 3224

Say it: I multiply 124 by 6 then I multiply 124 by 20

Conceptual variation; different ways to ask children to solve 6 × 23



Mai had to swim 23 lengths, 6 times a week. How many lengths did she swim in one week?

With the counters, prove that 6 x 23 = 138

Find the product of 6 and 23

6 × 23 =

□ = 6 × 23

6	23
× 23	× 6
___	___

What is the calculation? What is the product?