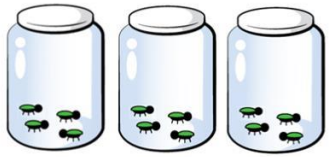
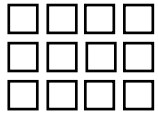
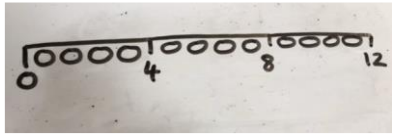
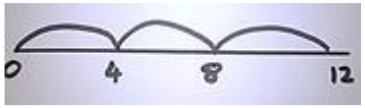
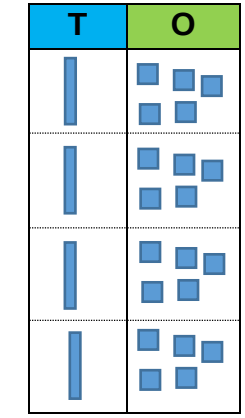
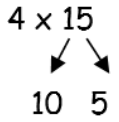
Multiplication Routeway

Key vocabulary: double, times, multiplied by, the product of, groups of, lots of, equal groups		
Concrete	**Pictorial**	**Abstract**
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.  X X X X X X X X X X X X	3 x 4 = 12 4 + 4 + 4 = 12 Children should use facts.
Number lines to show repeated groups- 3 × 4 	Represent this pictorially alongside a number line e.g.: 	Abstract number line showing three jumps of four. 3 × 4 = 12 

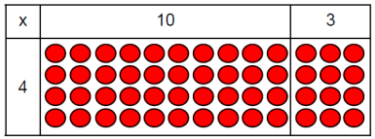
Multiplication Routeway

Partition to multiply using base 10 or Cuisenaire rods. 4 × 15 =  40 + 20 = 60	Children to represent the concrete manipulatives pictorially. 4 × 15 = T | O I | x x x x x I | x x x x x I | x x x x x I | x x x x x 40 + 20 = 60	Children to be encouraged to show the steps they have taken.  4 x 5 = 20 4 x10 = 40 20 + 40 = 60

Multiplication Routeway

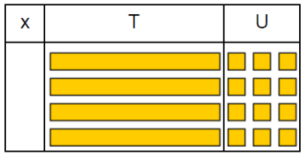
Grid Method

Show the link with arrays to first introduce the grid method.



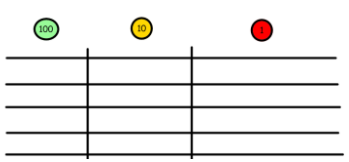
ows of 10
ows of 3

Move on to using Base 10 to move towards a more compact method.



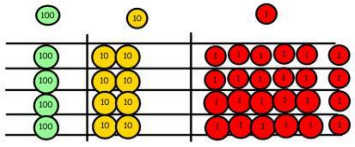
s of 13

Move on to place value counters to show how we are finding groups of a number. We are multiplying by 4 so we need 4 rows.



Calculations
4 x 126

Fill each row with 126.

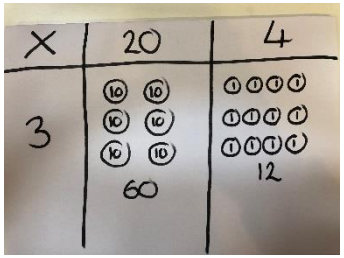


Calculations
4 x 126

Add up each column, starting with the ones making any exchanges needed.

Children can represent the work they have done with place value counters in a way that they understand.
They can draw the counters, using numbers to show different amounts or just use circles in the different columns to show their thinking as shown below.

24 x 3=



60 + 12 = 72

Start with multiplying by one digit numbers and showing the clear addition alongside the grid.

×	30	5
7	210	35

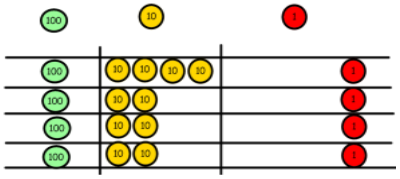
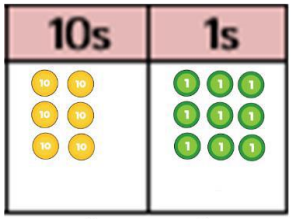
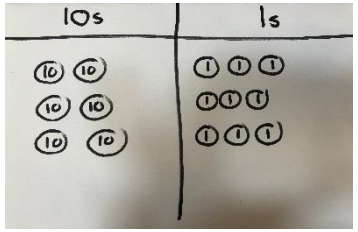
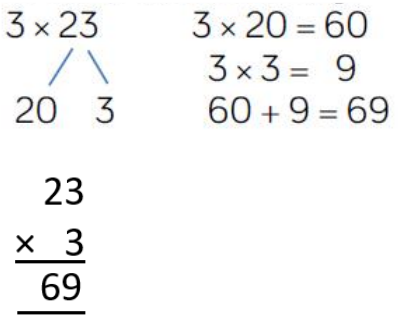
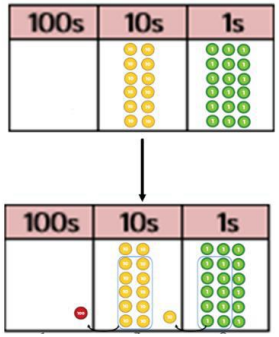
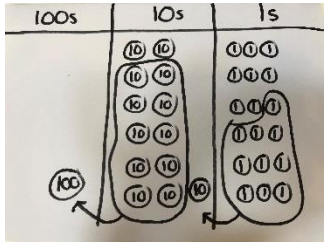
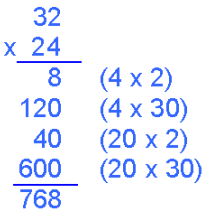
210 + 35 = 245

Moving forward, multiply by a 2 digit number showing the different rows within the grid method.

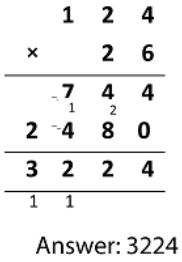
	10	8
10	100	80
3	30	24

X	1000	300	40	2
10	10000	3000	400	20
8	8000	2400	320	16

Multiplication Routeway

 Then you have your answer.		
Formal column method with place value counters (base 10 can also be used.) 3 × 23  60 + 9	Children to represent the counters pictorially.  60 + 9	Children to record what it is they are doing to show understanding. 
Formal column method with place value counters. 6 x 23 =  	Children to represent the counters/base 10, pictorially e.g. the image below. 6 x 23 =  100 + 30 + 8	Expanded method (If it helps, children can write out what they are solving next to their answer.) 

Multiplication Routeway

100 + 30 + 8		Formal written method. 6 x 23 = 23 × 6 138 1 1  Answer: 3224
When children start to multiply HTO × HTO and ThHTO × TO etc, they should be confident with the abstract:		