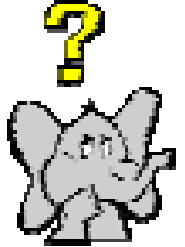
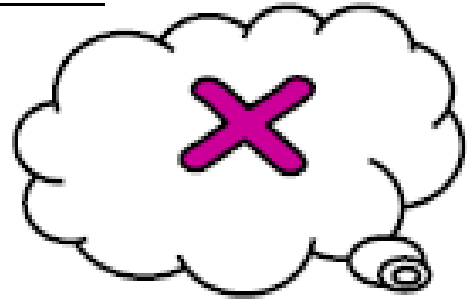


## Progression in Teaching Multiplication

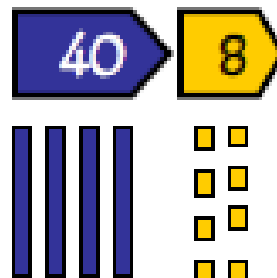
### Mental Skills

Recognise the size and position of numbers  
Count on in different steps 2s, 5s, 10s  
Double numbers up to 10  
Recognise multiplication as repeated addition  
Quick recall of multiplication facts  
Use known facts to derive associated facts  
Multiply by 10, 100 and 1000, understanding the effect  
Multiplying multiples of 10

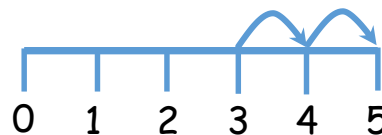


### Models and images

Counting apparatus  
Place value apparatus  
Arrays  
100 squares  
Number tracks  
Numbered number lines  
Marked but unnumbered lines  
Empty number lines  
Multiplication squares  
Counting sticks  
Bead strings  
Models and images charts  
ITPs - Multiplication Grid, Number  
Dials, Multiplication Facts



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

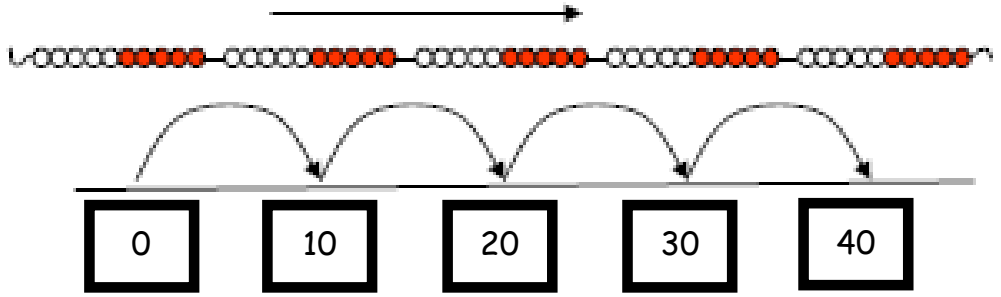


### Vocabulary

lots of  
groups of  
times  
multiply  
multiplication  
multiple  
product  
once, twice, three times  
array, row, column  
double  
repeated addition

<b>multiplication</b>	<b>product</b>
<b>once, twice, three times</b>	
<b>double</b>	<b>groups of</b>
<b>repeated addition</b>	<b>lots of</b>
<b>array, row, column</b>	<b>multiply</b>
<b>times</b>	<b>multiple</b>

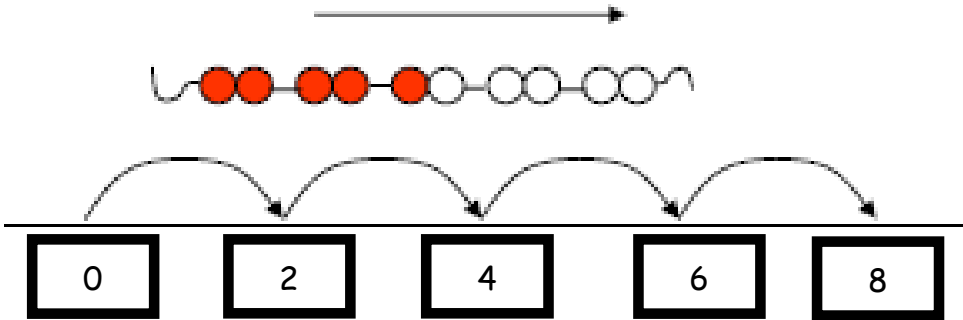
Count in tens from zero



10p 10p 10p 10p 10p

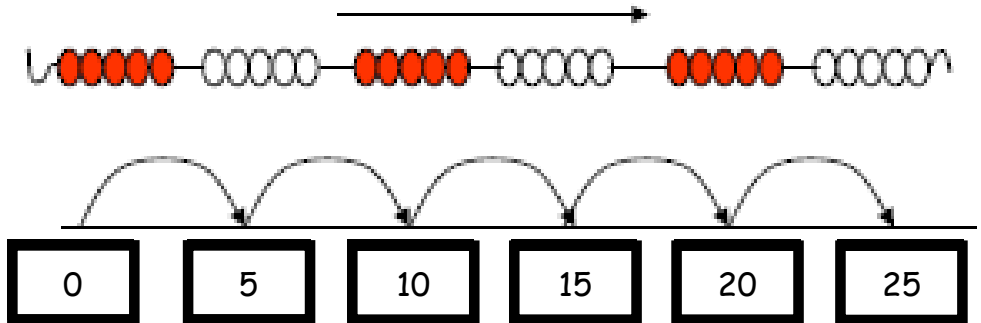
0 10 20 30 40

Count in twos from zero



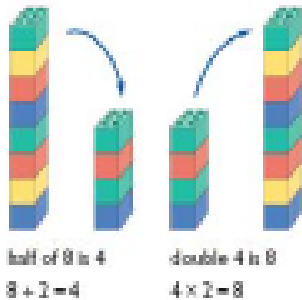
0 2 4 6 8

Count in fives from zero



0 5 10 15 20 25

Know doubles and corresponding halves



$$2 + 2 + 2 + 2$$

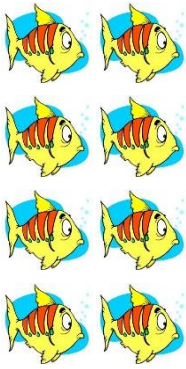
Understand multiplication as repeated addition

$$2 + 2 + 2 + 2 = 8$$

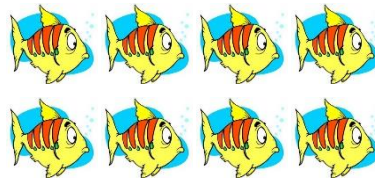
$$4 \times 2 = 8$$

2 multiplied by 4

4 lots of 2

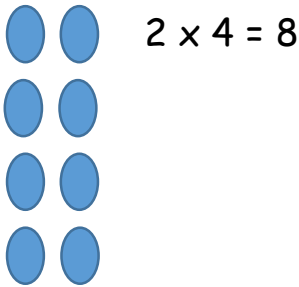


$$2 \times 4$$

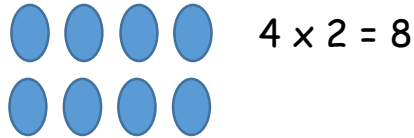


$$4 \times 2$$

Understand multiplication as an array



$$2 \times 4 = 8$$



$$4 \times 2 = 8$$

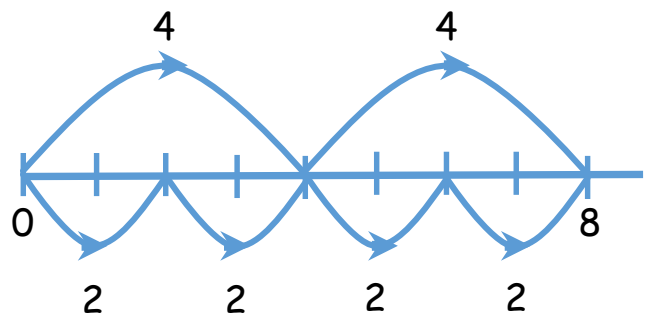
$$2 \times 4 = 8$$

$$4 \times 2 = 8$$

Understand how to represent arrays on a number line and see commutative nature of multiplication:  $2 \times 4 = 4 \times 2$

This could be on one number line with hops above and below, or on 2 separate number lines.

2 hops of 4



4 hops of 2

# Key Stage Two

Know multiplication tables to 12 x 12

**x 5**

$$2 \times 5 = 10$$

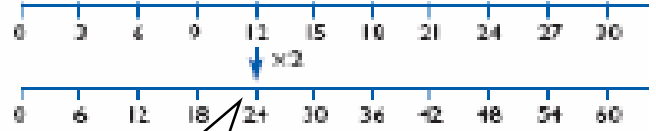
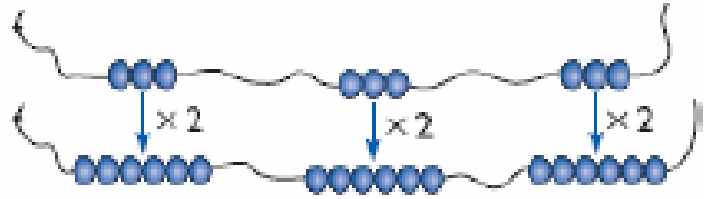
$$2 \times 5 = 10$$

$$4 \times 5 = 20$$

$$20 \times 5 = 100$$

$$8 \times 5 = 40$$

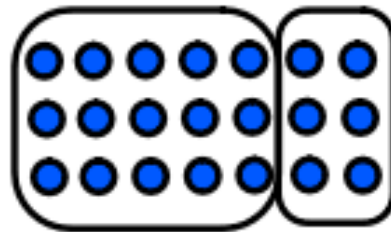
$$0.2 \times 5 = 1$$



Twice as many

$$12 \times 2 = 24$$

Use known facts to work out new ones.



$$5 \times 3 = 15 \quad 2 \times 3 = 6$$

$$7 \times 3 = 21$$

Use 5 times table facts to work out other tables.

Understand the effect of multiplying and dividing by 10, 100 and 1000.



$$4 \times 5 = 20$$

$$4 \times 50 = 200$$

$$4 \times 500 = 2000$$

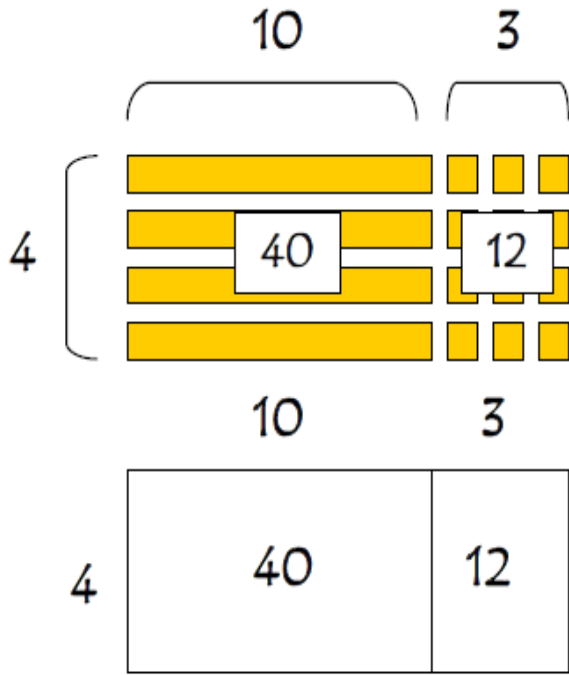
$$4 \times 5000 = 20\,000$$

$$4 \times 5 = 20$$

$$4 \times 0.5 = 2$$

$$4 \times 0.05 = 0.2$$

$$4 \times 0.005 = 0.02$$



$$4 \times 13$$

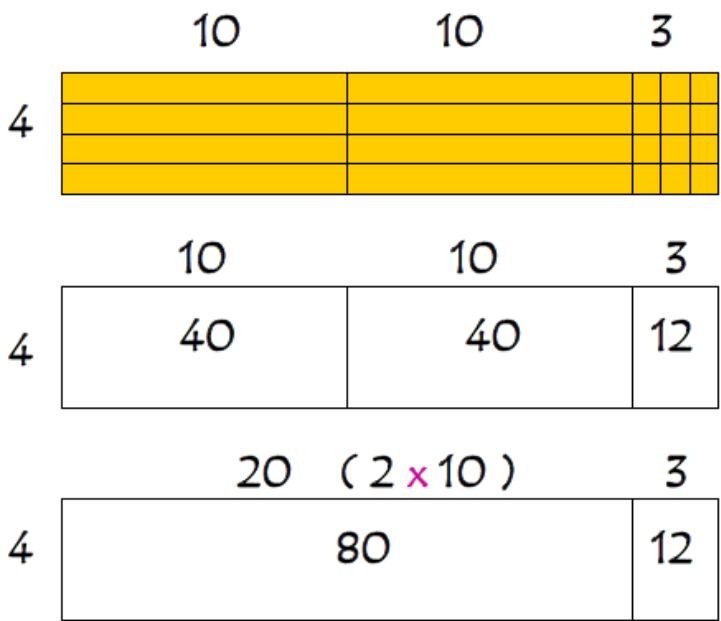
Use place value apparatus to support the multiplication of U x TU alongside the grid method

$$40 + 12 = 52$$

Use squared paper to draw arrays. Make connection to area explicit.

Continue to use place value apparatus alongside the grid method for multiplying bigger numbers.

$$4 \times 23$$



$$80 + 12 = 92$$

Multiplying TU × TU

$$14 \times 33$$

	30	3	
10	300	30	= 330 +
4	120	12	= 132

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Multiplying TU.t × U

×	20	3	.4
4	80	12	1.6

$$23.4 \times 4$$

Multiplying TU × TU using a standard written method

$$\begin{array}{r} 14 \\ \times 33 \\ \hline 12 \\ 30 \\ 120 \\ 300 \\ \hline 462 \end{array}$$

$3 \times 4$   
 $3 \times 10$   
 $30 \times 4$   
 $30 \times 10$

$$14 \times 33$$

Consider  
'What's the same?  
What's different?'  
between grid method  
recording and standard  
written method.