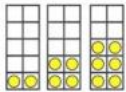
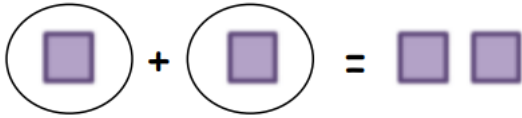


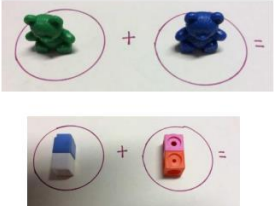
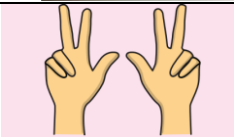
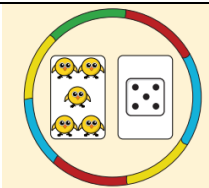
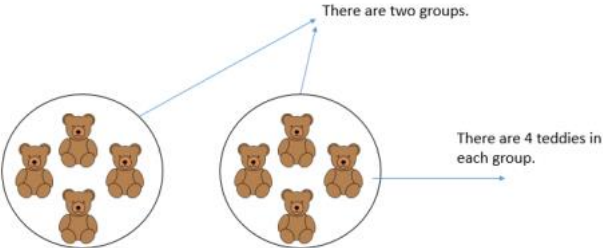
Calculation Policy

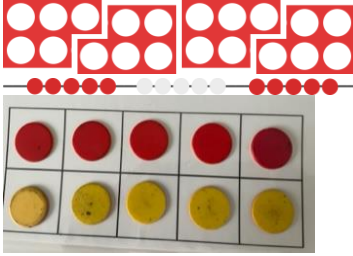
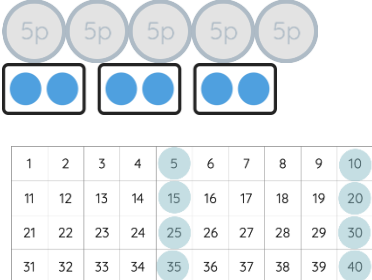
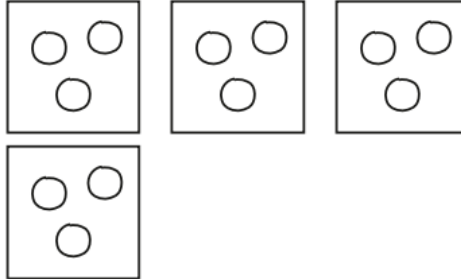
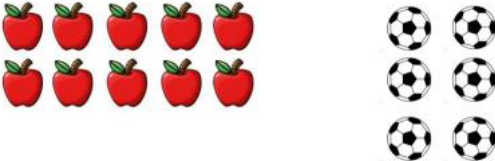
Multiplication

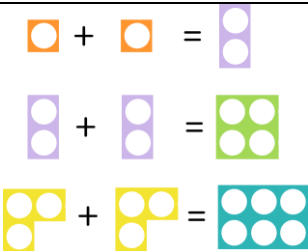
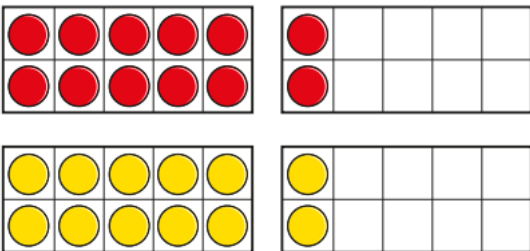
January 2024

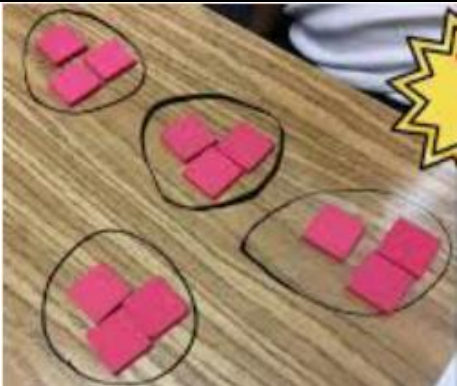
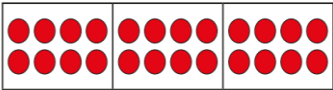
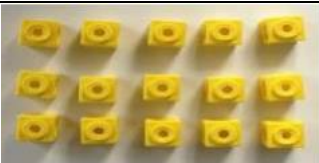
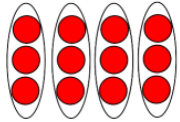
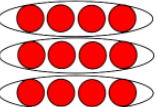
Multiplication

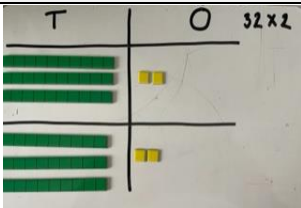
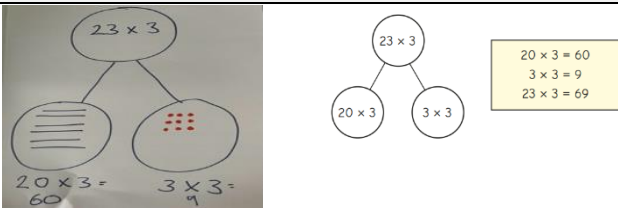
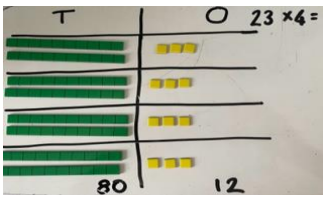
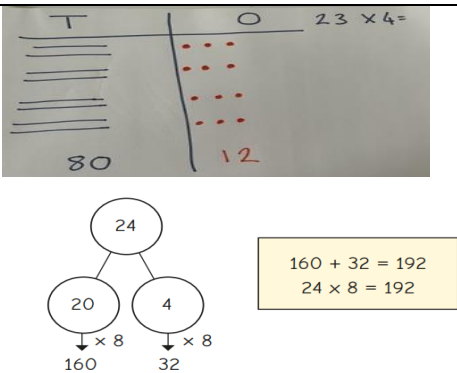
EYFS:			
Vocabulary :	Double. Equal, groups, grouping	Manipulatives & scaffolds:	Fingers Five frames Ten frames Double sided counters Numicon Cubes Bead strings Part-whole model
Small step:	Concrete:	Pictorial:	Abstract:
Doubling	The link between addition and multiplication can be introduced through doubling. Domino and dice fames can be used to do this as well as fingers. Representing the even number pair-wise on 10 frames supports the children to make the link between doubling and halving. They can also be used to illustrate the odd and even patterns of numbers 	Children have a go at recording by drawing pictures in groups 	$1 + 1 = 2$ Double 1 equals 2 Double ____ is ____

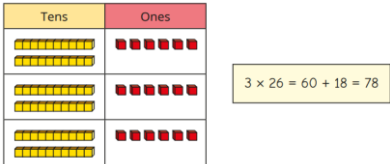
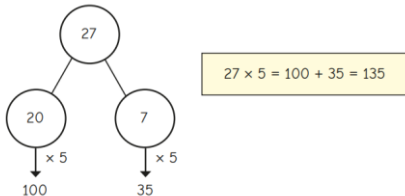
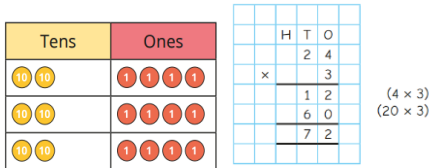
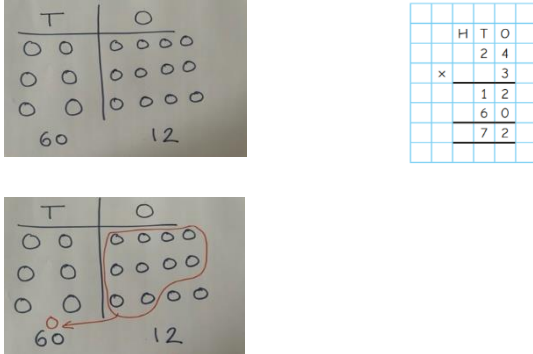
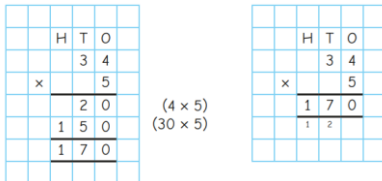
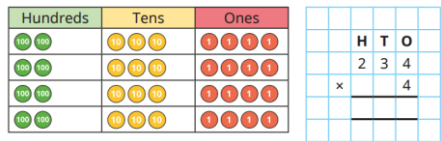
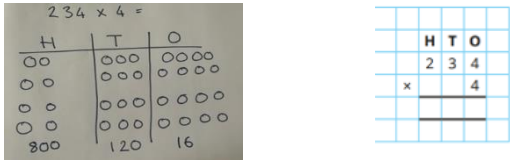
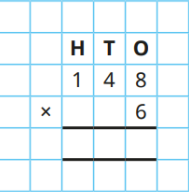
			
Doubles to 10	 There are 3 here and 3 there. Double 3 is 6. 6 is double 3.	 There are 5 here and 5 there. Double 5 is 10. 10 is double 5.	There are ___ here and ___ there. Double ___ is ___ ___ is double ___
Grouping	Children will experience equal groups of objects. Children will be encouraged to count the groups, then count how many objects are in a group – 4 and 4 	 There are two groups. There are 4 teddies in each group.	Stem sentence: There are ___ groups There are ___ in each group
Y1			
Vocabulary :	equal, unequal, group, odd, even, array, multiple, multiplication, multiplied by, division, dividing, grouping, groups of	Manipulatives & scaffolds:	Ten frames Double sided counters Numicon Cubes Bead strings

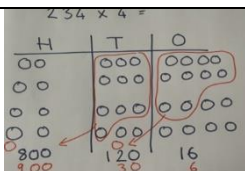
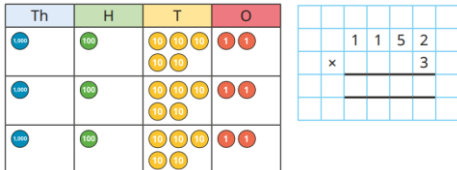
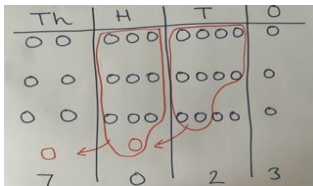
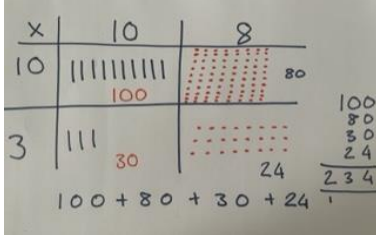
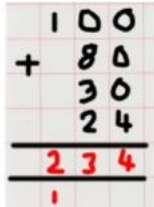
			Number line Bar model
Small step:	Concrete:	Pictorial:	Abstract:
Counting in multiples – 2s, 5, 10s			Say/write sequences: 2, 4, 6, 8... 10, 20, 30, 40... 5, 10, 15, 20, 25, 30...
Recognise equal groups	 There are ____ equal groups of ____ pencils.	 There are ____ equal groups of ____	There are ____ equal groups of ____
Add equal groups	 $10 + 10 + 10 = 30$	$5 + 5 + 5 = 15$ 	$5 + 5 + 5 = 15$
Make arrays	 There are ____ rows. There are ____ in a row.		$2 + 2 + 2 = 6$ $3 + 3 = 6$ There are 6 altogether

	There are __ in total. There are __ columns. There are __ in a column. There are __ altogether.	There are __ rows. There are __ in a row. There are __ in total. There are __ columns. There are __ in a column. There are __ altogether.	
Make doubles		 Double 12 is ____	Double 6 is __
Y2			
Vocabulary :	equal, unequal, group, odd, even, array, multiple, multiplication, multiplied by, division, dividing, grouping, groups of, times, repeated addition, row, column, commutative	Manipulatives & scaffolds:	Ten frames Double sided counters Numicon Cubes Bead strings Number line Bar model
Small step:	Concrete:	Pictorial:	Abstract:

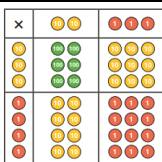
Multiplication symbol  $3 + 3 + 3 + 3 =$ 4 lots of 3... $4 \times 3 =$	 There are _____ equal groups with _____ in each group. _____ + _____ + _____ = 24 _____ $\times$ _____ = 24	_____ + _____ + _____ = _____ _____ $\times$ _____ = _____
Multiplication sentences  $3 + 3 + 3 + 3 = 12$ _____ lots of 3 = 12 _____ multiplied by _____ = 12 _____ $\times$ _____ = 12	 $5 + 5 + 5 = 15$ $3 + 3 + 3 + 3 + 3 = 15$ $5 \times 3 = 15$ $3 \times 5 = 15$	$5 + 5 + 5 + 5 = 20$ $4 \times 5 = 20$ $5 \times 4 = 20$
Use arrays  $5 \times 3 = 15$ $3 \times 5 = 15$	 $4 \times 3 = 12$  $3 \times 4 = 12$	_____ $\times$ _____ = 20 _____ $\times$ _____ = 20
Y3:		
Vocabulary:	equal, unequal, group, odd, even, array, multiple, multiplication,	Manipulatives and scaffolds:
		Base 10/Dienes Place value charts

	multiplied by, division, dividing, grouping, groups of, times, repeated addition, row, column, commutative, factor, product		Part whole models
Small step:	Concrete:	Pictorial:	Abstract:
Multiply a 2-digit number by a 1-digit number (no exchange)	 $3 \text{ tens} \times 2 = \underline{\quad} \text{ tens}$ $2 \text{ ones} \times 2 = \underline{\quad} \text{ ones}$ $\underline{\quad} + \underline{\quad} =$ $32 \times 2 =$		42×3 $= \underline{\quad} \text{ tens} \times 3 + \underline{\quad} \text{ ones} \times 3$ $= \underline{\quad} + \underline{\quad}$ $= \underline{\quad}$
Multiply a 2-digit number by a 1-digit number (with exchange)	 $2 \text{ tens} \times 4 = \underline{\quad} \text{ tens}$ $3 \text{ ones} \times 4 = \underline{\quad} \text{ ones}$ $24 \times 3 = \underline{\quad} + \underline{\quad}$ $24 \times 3 =$		24×8 $= 20 \times 8 + 4 \times 8$ $= \underline{\quad} + \underline{\quad}$ $= \underline{\quad}$
Y4			
Vocabulary:	equal, unequal, group, odd, even, array, multiple, multiplication,	Manipulatives & scaffolds:	Base 10/Dienes Place value charts

	multiplied by, division, dividing, grouping, groups of, times, repeated addition, row, column, commutative, factor, product		Place value counters Part whole models
Small step:	Concrete:	Pictorial:	Abstract:
Informal methods			$36 \times 4 = 160 + 35 = 195$
Multiply a 2-digit number by a 1-digit number			
Multiply a 3-digit number by a 1-digit number			

																												
Y5																												
Vocabulary:	equal, unequal, group, odd, even, array, multiple, multiplication, multiplied by, division, dividing, grouping, groups of, times, repeated addition, row, column, commutative, factor, product	Manipulatives & scaffolds:	Base 10/Dienes Place value charts Place value counters Part whole models																									
Small step:	Concrete:	Pictorial:	Abstract:																									
Multiply a 4-digit number by a 1-digit number		$2341 \times 3 =$ 	<table><tr><th></th><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td></td><td>2</td><td>3</td><td>4</td><td>1</td></tr><tr><td>x</td><td></td><td></td><td></td><td>3</td></tr><tr><td></td><td>6</td><td>9</td><td>12</td><td>3</td></tr><tr><td></td><td>7</td><td>0</td><td>2</td><td>3</td></tr></table>		Th	H	T	O		2	3	4	1	x				3		6	9	12	3		7	0	2	3
	Th	H	T	O																								
	2	3	4	1																								
x				3																								
	6	9	12	3																								
	7	0	2	3																								
Multiply a 2-digit number by a 2-digit number (area model)	<table><tr><td>x</td><td>30</td><td>40</td></tr><tr><td>20</td><td>600</td><td>800</td></tr><tr><td>4</td><td>120</td><td>160</td></tr></table> 34 × 23 = 600 + 90 + 80 + 12 = 782	x	30	40	20	600	800	4	120	160		$18 \times 13 = 234$ <table><tr><th>X</th><th>10</th><th>8</th></tr><tr><td>10</td><td>100</td><td>80</td></tr><tr><td>3</td><td>30</td><td>24</td></tr></table> 	X	10	8	10	100	80	3	30	24							
x	30	40																										
20	600	800																										
4	120	160																										
X	10	8																										
10	100	80																										
3	30	24																										

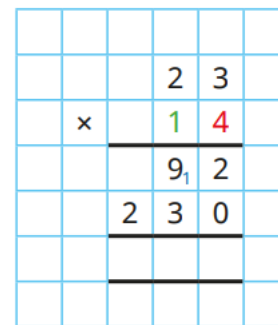
Multiply a 2-digit number by a 2-digit number



$$34 \times 23 = 600 + 90 + 80 + 12 = 782$$

×	10	3
30	300	90
2	20	6

$$300 + 90 + 20 + 6 = 416$$

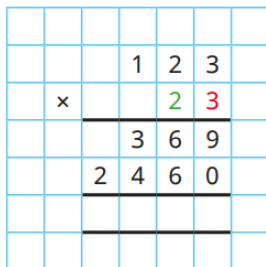


$$(23 \times 4)$$

$$(23 \times 10)$$

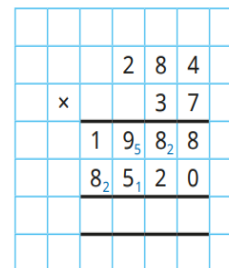
Multiply a 3-digit number by a 2-digit number

When children begin to multiply larger numbers, written methods become more efficient; concrete and pictorial methods are less effective and take too much time



$$(123 \times 3)$$

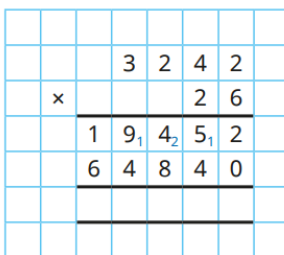
$$(123 \times 20)$$



$$(\text{ } \times \text{ })$$

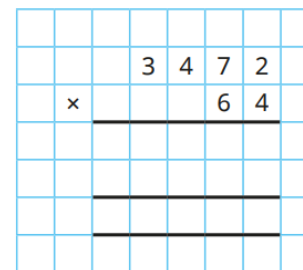
$$(\text{ } \times \text{ })$$

Multiply a 4-digit number by a 2-digit number



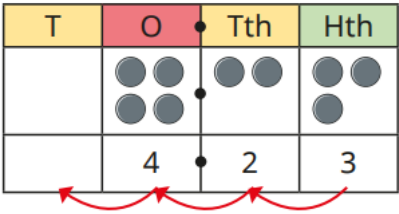
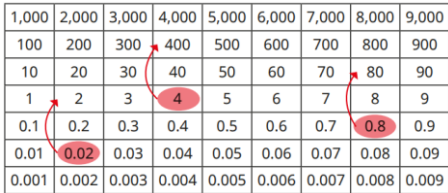
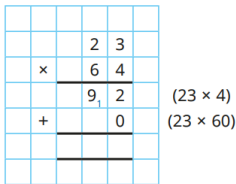
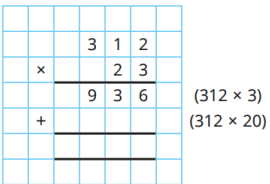
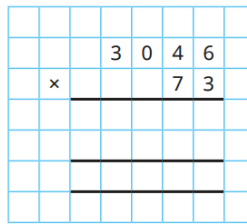
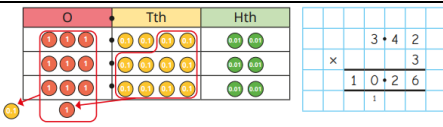
$$(3,242 \times \text{ })$$

$$(3,242 \times \text{ })$$



$$(\text{ } \times \text{ })$$

$$(\text{ } \times \text{ })$$

Multiply decimals – missing values	$4.23 \times \underline{\hspace{1cm}} = 42.3$ 	$4.82 \times \underline{\hspace{1cm}} = 482$ 	$3.4 \times \underline{\hspace{1cm}} = 34$ $\underline{\hspace{1cm}} \times 5.62 = 5,620$ $1,000 \times \underline{\hspace{1cm}} = 345$
Y6			
Vocabulary:	equal, unequal, group, odd, even, array, multiple, multiplication, multiplied by, division, dividing, grouping, groups of, times, repeated addition, row, column, commutative, factor, product	Manipulatives & scaffolds:	Base 10/Dienes Place value charts Place value counters Part whole models
Small step:	Concrete:	Pictorial:	Abstract:
Multiply up to a 4-digit number by a 2-digit number		 	
Multiply decimals by integers		$3.24 \times 3 =$	