Calculation Policy Multiplication
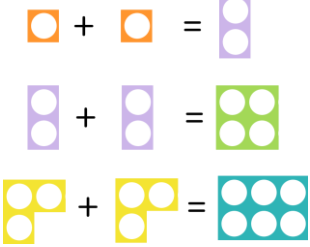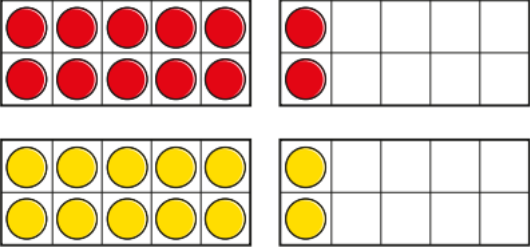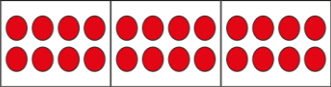
September 2023
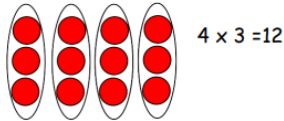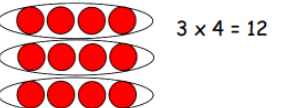
Multiplication
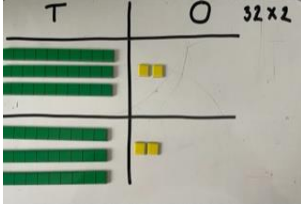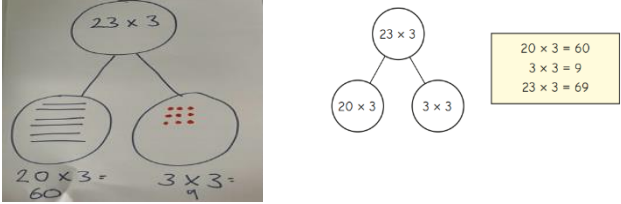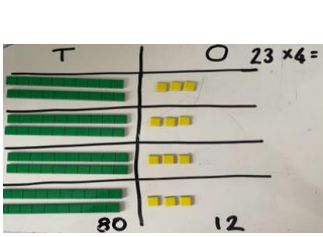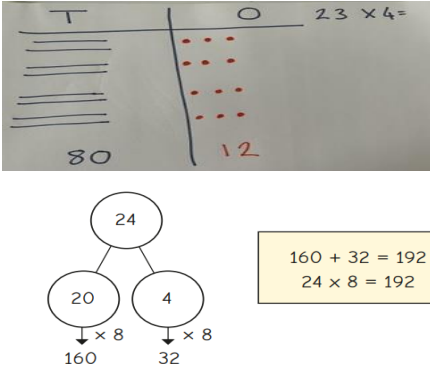
EYFS:			
Vocabulary:	Double. Equal, groups, grouping	**Manipulatives & scaffolds:**	Fingers Five frames Ten frames Double sided counters Numicon Cubes Bead strings Part-whole model
Small step:	**Concrete:**	**Pictorial:**	**Abstract:**
Doubling	The link between addition and multiplication can be introduced 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 Stem Sentence: Double 1 equals 2
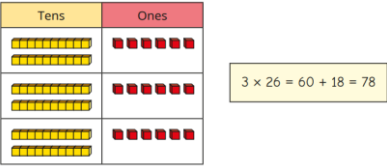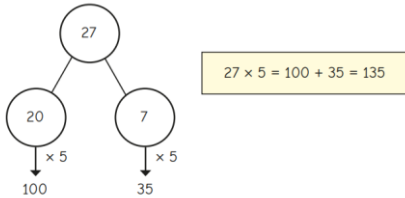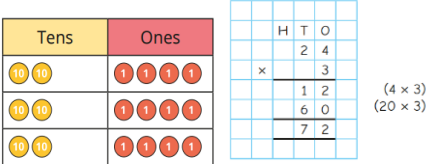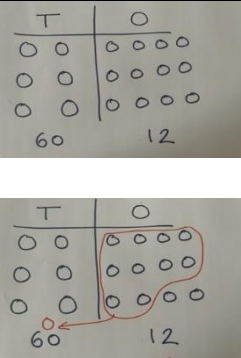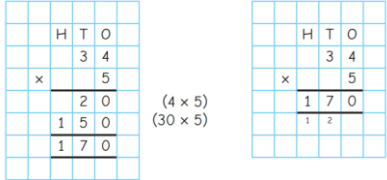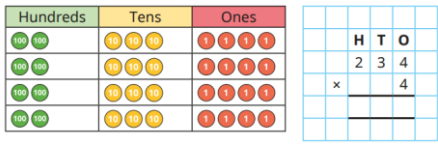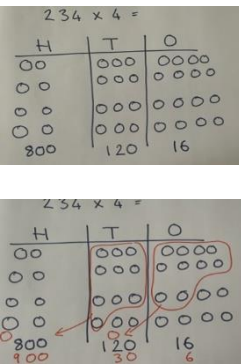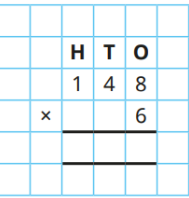
Grouping	Children will experience equal groups of objects. Children will be encouraged to count the groups, then count how many objects are in a group – 4 and 4	There are two groups. There are 4 teddies in each group.	Stem sentence: There are __ groups There are __ in each group
Y1			
Vocabulary:	equal, 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		5p 5p 5p 5p 5p	Say/write sequences: 2, 4, 6, 8…
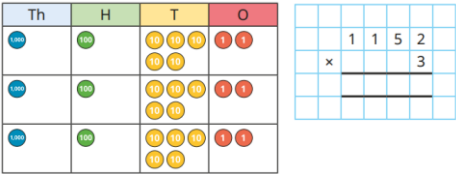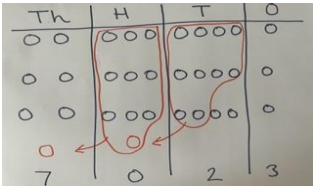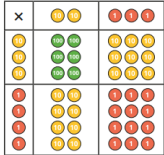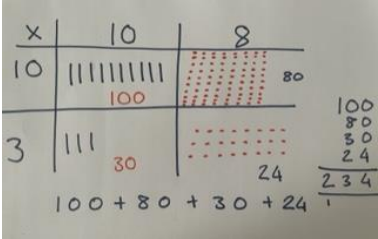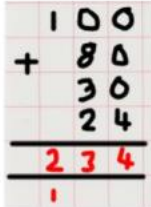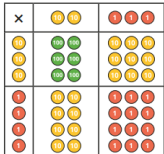
multiples – 2s, 5, 10s			10, 20, 30, 40… 5, 10, 15, 20, 25, 30…
Recognise equal groups	 There are _____ equal groups of _____ pencils.	 There are ___ equal groups of___	There are ___ equal groups of___
Add equal groups	 10 + 10 + 10 = 30	5 + 5 + 5 = 15 	5 + 5 + 5 = 15
Make arrays	 There are __ rows. There are __ in a row. 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.	2 + 2 + 2 = 6 3 + 3 = 6 There are 6 altogether
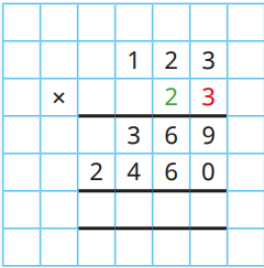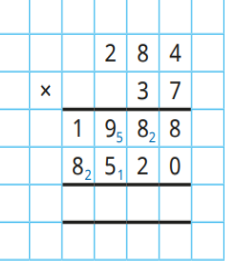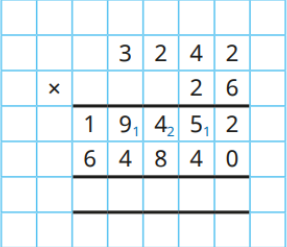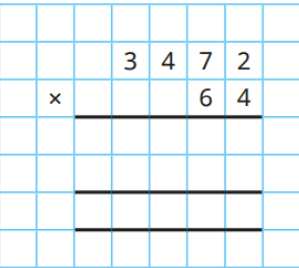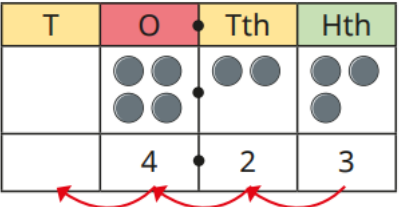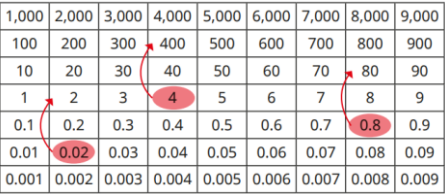
Make doubles		Double 12 is ___	Double 6 is___
Y2			
Vocabulary:	equal, unequal, group, odd, even, array, multiple, multiplication, multiplied by, division, dividing, grouping, groups of, times, repeated addition, row, column, commutative	**Manipulatives & scaffolds:**	Ten frames Double sided counters Numicon Cubes Bead strings Number line Bar model
Small step:	**Concrete:**	**Pictorial:**	**Abstract:**
Multiplication symbol	 5 + 5 + 5 + 5 + 5 + 5 = There are 6 lots of 5 5 x 6 = 30	 There are _____ equal groups with _____ in each group. _____ + _____ + _____ = 24 _____ × _____ = 24	_____ + _____ + _____ = _____ _____ × _____ = _____
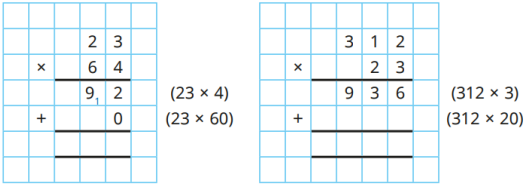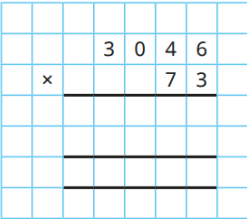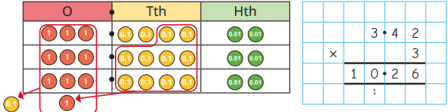
Multiplication sentences	3 + 3 + 3 + 3 = 12 __ lots of 3 = 12 __ multiplied by __ = 12 __ x __ = 12	5 + 5 + 5 = 15 3 + 3 + 3 + 3 + 3 = 15 5 x 3 = 15 3 x 5 = 15	$5 + 5 + 5 + 5 = 20$ $4 \times 5 = 20$ $5 \times 4 = 20$
Use arrays	5 x 3 = 15 3 x 5 = 15	4 x 3 =12 3 x 4 = 12	__ X __ = 20 __ x __ = 20
Y3:			
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 and scaffolds:**	Base 10/Dienes Place value charts Part whole models
Small step:	**Concrete:**	**Pictorial:**	**Abstract:**

Multiply a 2-digit number by a 1-digit number (no exchange)	 3 tens x 2 = __ tens 2 ones x 2 = __ ones __ + __ = 32 x 2 =		42 × 3 = ___ tens × 3 + ___ ones × 3 = ___ + ___ = ___
Multiply a 2-digit number by a 1-digit number (with exchange)	 2 tens X 4 = __ tens 3 ones X 4 = __ ones 24 X 3 = __ + __ 24 X 3 =		24 × 8 = 20 × 8 + 4 × 8 = ___ + ___ = ___
Y4			
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	**Concrete:**	**Pictorial:**	**Abstract:**

step:			
Informal methods	$3 \times 26 = 60 + 18 = 78$	$27 \times 5 = 100 + 35 = 135$	36 X 4 = 160 + 35 = 195
Multiply a 2-digit number by a 1-digit number	(4×3) (20×3)	(4×3) (20×3)	(4×5) (30×5)
Multiply a 3-digit number by a 1-digit number			
Y5			
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:
Multiply a 4-digit number by a 1-digit number		2341 x 3 = 	
Multiply a 2-digit number by a 2-digit number (area model)	 34 × 23 = 600 + 90 + 80 + 12 = 782		18 × 13 = 234
Multiply a 2-digit number by a 2-digit number	 34 × 23 = 600 + 90 + 80 + 12 = 782	 300 + 90 + 20 + 6 = 416	 (23 × 4) (23 × 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	$$\begin{array}{r} 1\ 2\ 3 \\ \times\quad 2\ 3 \\ \hline 3\ 6\ 9 \\ 2\ 4\ 6\ 0 \\ \hline \end{array}$$ (123 × 3) (123 × 20)	$$\begin{array}{r} 2\ 8\ 4 \\ \times\quad 3\ 7 \\ \hline 1\ 9_5\ 8_2\ 8 \\ 8_2\ 5_1\ 2\ 0 \\ \hline \end{array}$$ (_____ × _____) (_____ × _____)
Multiply a 4-digit number by a 2-digit number		$$\begin{array}{r} 3\ 2\ 4\ 2 \\ \times\quad\ \ 2\ 6 \\ \hline 1\ 9_1\ 4_2\ 5_1\ 2 \\ 6\ 4\ 8\ 4\ 0 \\ \hline \end{array}$$ (3,242 × _____) (3,242 × _____)	$$\begin{array}{r} 3\ 4\ 7\ 2 \\ \times\quad\ \ 6\ 4 \\ \hline \end{array}$$ (_____ × _____) (_____ × _____)
Multiply decimals – missing values	$4.23 \times \rule{2em}{0.4pt} = 42.3$	$4.82 \times \rule{2em}{0.4pt} = 482$	$3.4 \times \rule{2em}{0.4pt} = 34$ $\rule{2em}{0.4pt} \times 5.62 = 5{,}620$ $1{,}000 \times \rule{2em}{0.4pt} = 345$
Y6			
Vocabulary:	equal, unequal, group, odd, even, array, multiple, multiplication, multiplied by,division, dividing, grouping, groups of, times, repeated addition, row, column, commutative,	**Manipulatives & scaffolds:**	Base 10/Dienes Place value charts Place value counters Part whole models

	factor, product		
Small step:	**Concrete:**	**Pictorial:**	**Abstract:**
Multiply up to a 4-digit number by a 2-digit number		(23 × 4) (23 × 60) (312 × 3) (312 × 20)	
Multiply decimals by integers		3.24 X 3 =	