



## 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

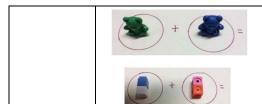
The link between addition and multiplication can be introduced through doubling. Domino and dice fames can be used to do this as well as fingers. Representing the even number pair-wise on 10 frames supports the children to make the link between doubling and halving. They can also be used to illustrate 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	Say/write sequences: 2, 4, 6, 8





multiples – 2s, 5, 10s		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	10, 20, 30, 40 5, 10, 15, 20, 25, 30
Recognise equal groups	There are equal groups of pencils.	There areequal groups of	There are equal groups of
Add equal groups	10 + 10 + 10 = 30	5+5+5=15	5+5+5=15
Make arrays	3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5		2 + 2 + 2 = 6 3 + 3 = 6 There are 6 altogether
	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.	





Make doubles	+ = + + = + + = + + + + + + + + + + + +	Double 12 is	Double 6 is
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	Concrete:	Pictorial:	Abstract:
step:			
Multiplication symbol	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	+= ×=





step:			
Small	Concrete:	Pictorial:	Abstract:
	grouping, groups of, times, repeated addition, row, column, commutative, factor, product		
	multiplied by, division, dividing,		Part whole models
Vocabulary:	equal, unequal, group, odd, even, array, multiple, multiplication,	Manipulatives and scaffolds:	Base 10/Dienes Place value charts
Y3:	anual magnial avanua add	Danis delice and coffed de	Page 10/Dianas
	3 x 5 = 15		
	5 x 3 = 15	3 x 4 = 12	
OSC arrays		4 x 3 =12	x = 20
Use arrays			X = 20
	multiplied by = 12 x = 12	5 x 3 = 15 3 x 5 = 15	
	lots of 3 = 12	3 + 3 + 3 + 3 + 3 = 15	
	3+3+3+3=12	5 + 5 + 5 = 15	3 ^ 4 - 20
		00000	$4 \times 5 = 20$ $5 \times 4 = 20$
n sentences		00000	26.500
Multiplicatio		00000	5+5+5+5=20





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 =	23 x 3 20 x 3 = 60 3 x 3 = 9 23 x 3 = 69	42 × 3 = tens × 3 + ones × 3 = + =
Multiply a 2-digit number by a 1-digit number (with exchange)	23 ×4= 2 tens X 4 = tens 3 ones X 4 = ones 24 X 3 = + 24 X 3 =	23 × 4=  30  12  160 + 32 = 192  24 × 8 = 192	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	Tens Ones  3 × 26 = 60 + 18 = 78	27 × 5 = 100 + 35 = 135 27 × 5 = 100 + 35 = 135	36 X 4 = 160 + 35 = 195
Multiply a 2-digit number by a 1-digit number	Tens Ones	T O O O O O O O O O O O O O O O O O O O	H T O 3 4  x 5 2 0 1 5 0 1 7 0 3 (4 × 5) 1 7 0
Multiply a 3-digit number by a 1-digit number	Hundreds Tens Ones	234 x 4 = H T O	H T O 1 4 8 × 6





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	Concrete:	Pictorial:	Abstract:
step:			
Multiply a 4-digit number by a 1-digit number	Th H T O 1 1 1 5 2 x 3 3	2341 x 3 =  Th	Th H T O 1 8 2 6 x 3 5 4 7 8
Multiply a 2-digit number by a 2-digit number (area model)	x 00 000 00 00	X   10   8 10             80 3      30    24    234    100+80+30+24	X     10     8       10     100     80       3     30     24





Multiply a 2-digit number by a 2-digit number	x 00 00 00 00 00 00 00 00 00 00 00 00 00	x 10 3 30 300 90 2 20 6 300 + 90 + 20 + 6 = 416	2 3 × 1 4 9 <sub>1</sub> 2 (23 × 4) 2 3 0 (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	1 2 3 × 2 3 3 6 9 (123 × 3) 2 4 6 0 (123 × 20)	2 8 4 x 3 7 1 9 <sub>5</sub> 8 <sub>2</sub> 8 8 <sub>2</sub> 5 <sub>1</sub> 2 0 (x)
Multiply a 4-digit number by a 2-digit number		3 2 4 2 × 2 6 1 9 <sub>1</sub> 4 <sub>2</sub> 5 <sub>1</sub> 2 6 4 8 4 0 (3,242 ×) (3,242 ×)	(x)





Multiply decimals – missing values	4.23 × = 42.3  T	1,000 2,000 3,000 4,000 5,000 6,000 7,000 8,000 9,000 100 200 300 400 500 600 700 800 900 10 20 30 40 50 60 70 80 90 10 2 30 40 50 60 70 80 90 10 2 30 40 50 60 70 80 90 10 2 30 40 50 60 70 80 90 10 10 20 30 40 50 60 70 80 90 10 10 20 30 0.4 0.5 0.6 0.7 8 9 10 10 10 10 10 10 10 10 10 10 10 10 10	3.4 × = 34 × 5.62 = 5,620 1,000 × = 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		2 3 × 6 4 9, 2 (23 × 4) + 0 (23 × 60) (23 × 60) (312 × 3) (312 × 20)	3 0 4 6 × 7 3





Multiply	0 Tth Hth 3+4 2	3.24 X 3 =	
decimals by			
integers		000 00 0000 000 00 0000	4 9 2
		9 ones 6 tenths 12 hundredths	X 3
		0 t h	14.76
		000 00 000	2
		9 ones 7 tenths 2 hundredths	