LEARNING AND FLOURISHING TOGETHER

PROUD TO BE PART OF PDET

Sywell CE Primary School

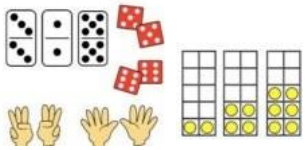
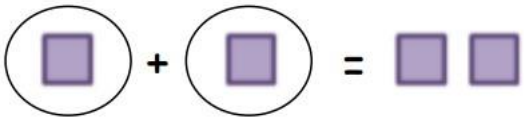
Calculation Policy

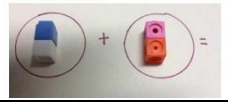
Multiplication

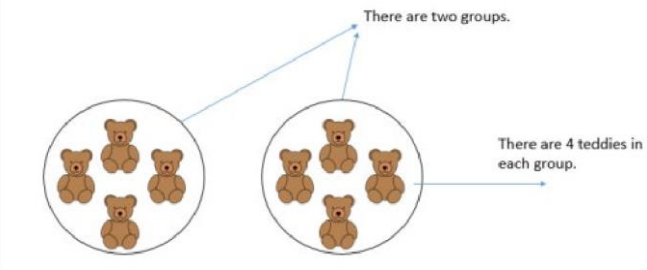
September 2023

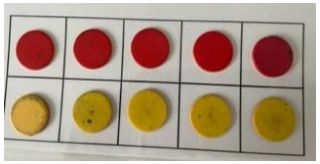
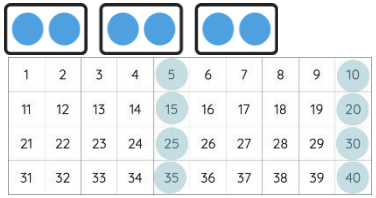
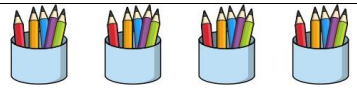
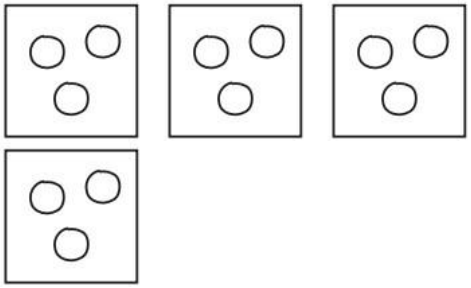
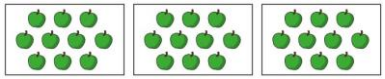
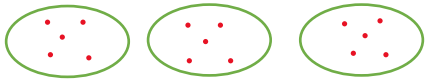
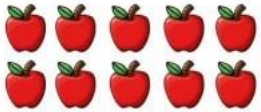
Multiplication

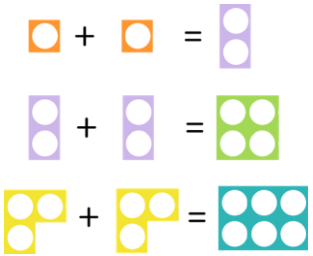
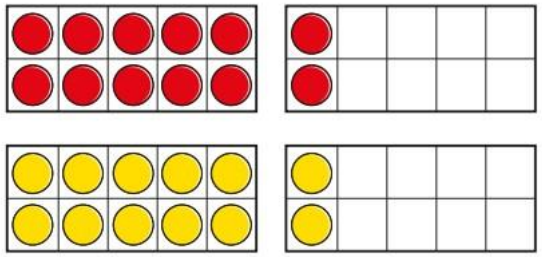
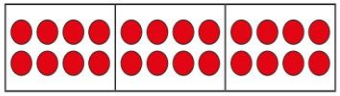
EYFS:			
Vocabulary:	Double. Equal, groups, grouping	**Manipulatives & scaffolds:**	Fingers Five frames Ten frames Double sided counters Numicon Cubes Bead strings Part-whole model
Small step:	**Concrete:**	**Pictorial:**	**Abstract:**

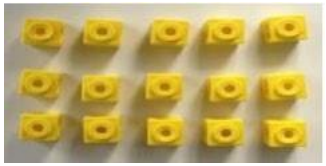
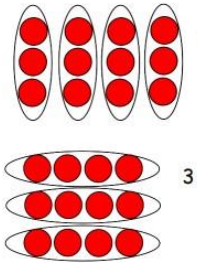
Doubling	The link between addition and multiplication can be introduced through doubling. Domino and dice fames can be used to do this as well as fingers. Representing the even number pair-wise on 10 frames supports the children to make the link between doubling and halving. They can also be used to 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

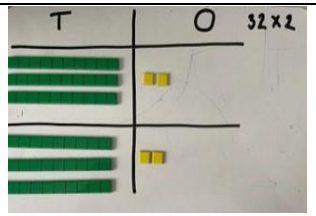
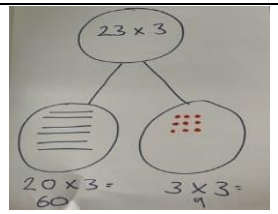
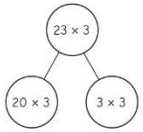
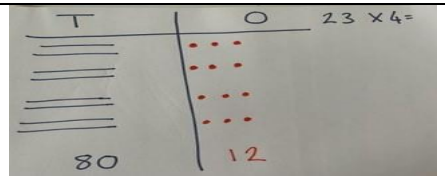
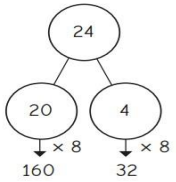
	 		

Grouping	Children will experience equal groups of objects. Children will be encouraged to count the groups, then count how many objects are in a group – 4 and 4 		Stem sentence: There are __ groups There are __ in each group
Y1			
Vocabulary :	equal, unequal, group, odd, even, array, multiple, multiplication, 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			Say/write sequences: 2, 4, 6, 8…

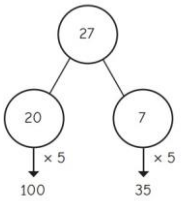
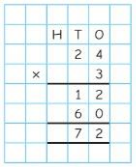
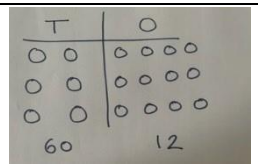
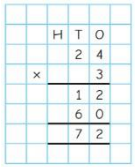
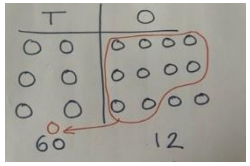
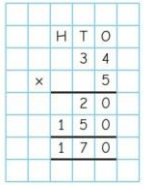
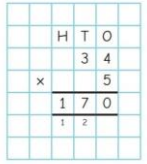
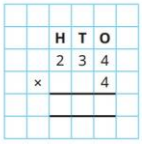
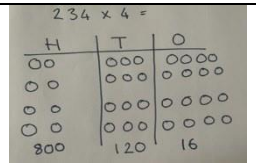
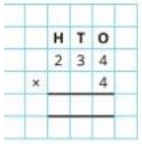
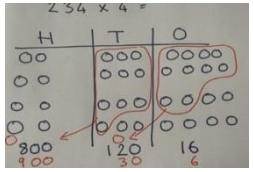
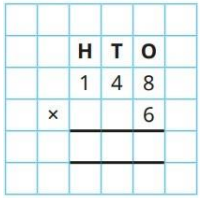
multiples – 2s, 5, 10s			10, 20, 30, 40… 5, 10, 15, 20, 25, 30…
Recognise equal groups		 There are ___ equal groups of___	There are ___ equal groups of___
Add equal groups	 10 + 10 + 10 = 30	5 + 5 + 5 = 15 	5 + 5 + 5 = 15
Make arrays	  There are __ rows. There are __ in a row. There are __ in total. 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

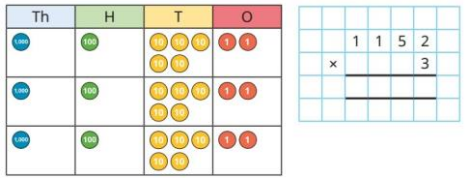
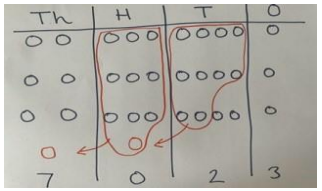
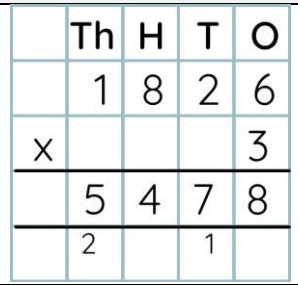
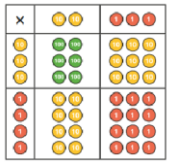
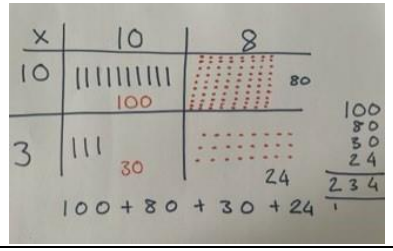
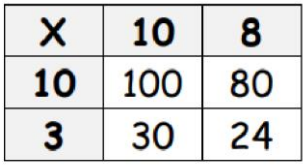
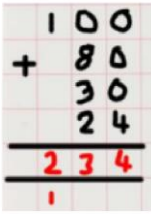
Make doubles		 Double 12 is ___	Double 6 is__
Y2			
Vocabulary:	equal, unequal, group, odd, even, array, multiple, multiplication, multiplied by, division, dividing, grouping, groups of, times, repeated addition, row, column, commutative	**Manipulatives & scaffolds:**	Ten frames Double sided counters 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	_____ + _____ + _____ = _____ _____ × _____ = _____

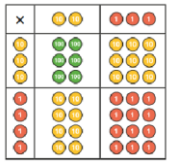
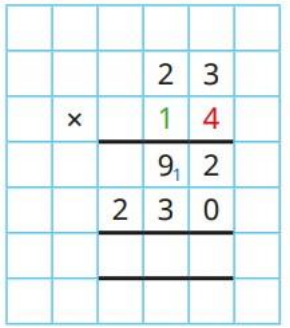
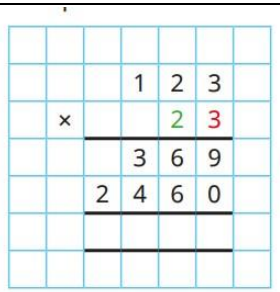
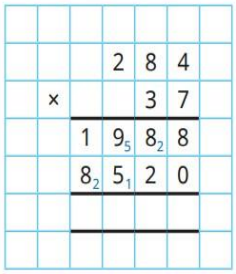
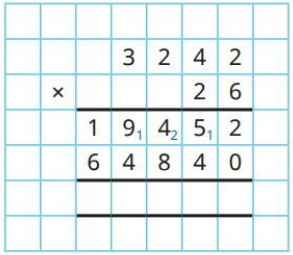
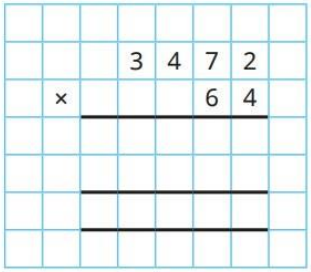
Multiplication sentences	 3 + 3 + 3 + 3 = 12 __ lots of 3 = 12 __ multiplied by __ = 12 __ x __ = 12	 5 + 5 + 5 = 15 3 + 3 + 3 + 3 + 3 = 15 5 x 3 = 15 3 x 5 = 15	5 + 5 + 5 + 5 = 20 4 × 5 = 20 5 × 4 = 20
Use arrays	 5 x 3 = 15 3 x 5 = 15	 4 x 3 =12 3 x 4 = 12	__ X __ = 20 __ x __ = 20
Y3:			
Vocabulary:	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 =	  20 × 3 = 60 3 × 3 = 9 23 × 3 = 69	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 =	  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	 3 × 26 = 60 + 18 = 78	 27 × 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 x 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	 (123 × 3) (123 × 20)	 (____ × ____) (____ × ____)
Multiply a 4-digit number by a 2-digit number		 (3,242 × _____) (3,242 × _____)	 (_____ × _____) (_____ × _____)

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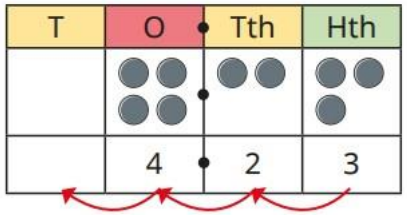
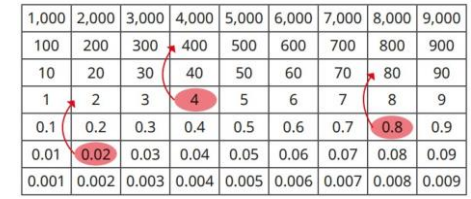
<td>Multiply decimals – missing values</td>
<td>4.23 × _____ = 42.3
 
</td>
<td> 

4.82 × _____ = 482</td>
<td>3.4 × _____ = 34
_____ × 5.62 = 5,620
1,000 × _____ = 345</td>
</tr>
<tr>
<td>Y6</td>
<td></td>
<td></td>
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<tr>
<td>Vocabulary:</td>
<td>equal, unequal, group, odd, even, array, multiple, multiplication, multiplied by, division, dividing, grouping, groups of, times, repeated addition, row, column, commutative,</td>
<td>Manipulatives & scaffolds:</td>
<td>Base 10/Dienes
Place value charts
Place value counters
Part whole models</td>
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<td>factor, product</td>
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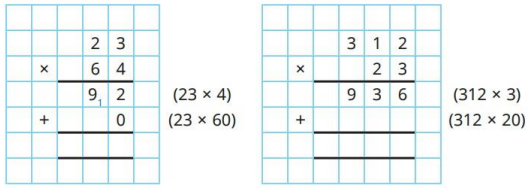
<tr>
<td>Small step:</td>
<td>Concrete:</td>
<td>Pictorial:</td>
<td>Abstract:</td>
</tr>
<tr>
<td>Multiply up to a 4-digit number by a 2-digit number</td>
<td></td>
<td> 
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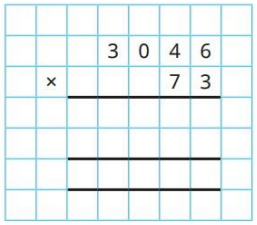
<td> 
</td>
</tr>
</table>

Multiply decimals by integers		3.24 X 3 =