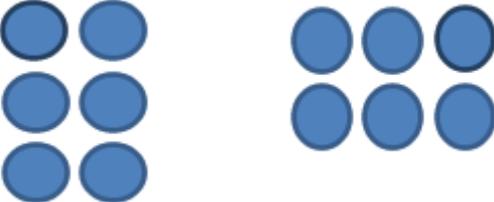


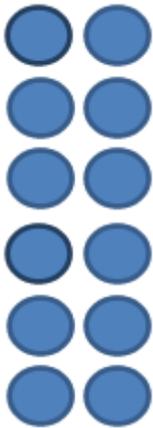
Coppice Valley Mathematics Calculation Guidelines

Progression through calculation for **multiplication**

- Children need to understand that multiplication is commutative and use this information to rearrange calculations knowing that $4 \times 5 = 20$ will give the same answer as $5 \times 4 = 20$
- Children need to understand that multiplication is repeated addition
- Children should be encouraged to approximate before calculating and check whether their answer is reasonable
- Ensure that children understand the = sign means 'the same as'/equal to and that children see calculations where the equals sign is in a different position e.g. $2 \times 5 = 10$ and $10 = 2 \times 5$

<p>Year 2</p>  <p>$2 \times 3 = 6$ $3 \times 2 = 6$</p> 	<p>Children will begin to learn multiplication in the form of repeated addition and arrays. Repeated addition will support their arrays.</p> <p>They will initially use counters, numicon and multilink to represent their arrays. Their arrays will show multiplication can be done in any order.</p> <p>They will then progress on to quick recall of their multiplication facts (2x, 4x, 5x and 10x)</p> <p>Times Tables Rockstars will be used from year 2 to increase speed of multiplication recall</p>
<p>Year 3</p> <p>$6 \times 2 = 12$</p> 	<p>In year 3 children will have a good understanding of multiplication and the children will be able to recall the 2x, 4x, 5x and 10x tables.</p> <p>Arrays will continue to be used as a method of solving multiplication.</p> <p>The children will begin to look at the relationship between the 2x, 4x and 8x tables and the 3x, 6x and 9x tables.</p>

$$2 \times 6 = 12$$



24					
4	4	4	4	4	4
8		8		8	

$$\begin{array}{r}
 \text{H T U T U} \\
 \times \quad | \quad 40 \quad | \quad 4 \\
 \hline
 4 \quad | \quad 160 \quad | \quad 16
 \end{array}$$

$$160 + 16 = 176$$

Additionally, children will learn the patterns of the 7x tables.

Children will multiply 2-digit numbers by a 1-digit number. They will use the grid method to partition the numbers and apply the facts they know.

Year 4

TU x TU
Estimate and check 72×38 is approx. $70 \times 40 = 2800$

X	70	2	
30	2100	60	= 2160
8	560	16	+ 576
			<u>2736</u>
			1

HTU x TU Estimate and check
 372×24 is approx. $400 \times 20 = 8000$

X	300	70	2
20	6000	1400	40 = 7440
4	1200	280	+ 1488
			<u>8928</u>
			1

Children will multiply two-digit and three-digit numbers by a one-digit number using a formal written layout, grid method.

Year 5

Short Multiplication

	5	4	6	3	
x				9	
4	9	1	6	7	
	4	5	2		

Long Multiplication

		2	4	7	
		x	2	3	
		7	4	1	
		₁	₂		
+	4	9	4	0	
	5	6	8	1	
	1				

x10
then
x 2
Place
holder

Children will multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers.

Year 6

Short Multiplication

	5	4	6	3	
x				9	
4	9	1	6	7	
	4	5	2		

Long Multiplication

		2	4	7	
		x	2	3	
		7	4	1	
		₁	₂		
+	4	9	4	0	
	5	6	8	1	
	1				

x10
then
x 2
Place
holder

Children will multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.

	2	.	4	7	
x				6	
1	4	.	8	2	
	2		4		