

Progression in Calculations. Y5

Multiplication.

<p><b>Year 5</b></p> <p style="color: red;">Multiply 4-digits by 1-digit</p> <p>Children build on previous steps to represent a 4-digit number multiplied by a 1-digit number using concrete manipulatives.</p> <p>Children then move on to explore multiplication with exchange in one, and then more than one column.</p>	<p>Complete the calculation.</p> <table border="1" style="display: inline-table; margin-right: 20px;"> <thead> <tr> <th>Thousands</th> <th>Hundreds</th> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1000</td> <td></td> <td style="text-align: center;">10 10</td> <td style="text-align: center;">1 1 1</td> </tr> <tr> <td style="text-align: center;">1000</td> <td></td> <td style="text-align: center;">10 10</td> <td style="text-align: center;">1 1 1</td> </tr> <tr> <td style="text-align: center;">1000</td> <td></td> <td style="text-align: center;">10 10</td> <td style="text-align: center;">1 1 1</td> </tr> </tbody> </table> <table border="1" style="display: inline-table;"> <thead> <tr> <th></th> <th>Th</th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td></td> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td style="text-align: center;">×</td> <td></td> <td></td> <td></td> <td style="text-align: center;">3</td> </tr> <tr> <td></td> <td colspan="4" style="border-top: 1px solid black;"></td> </tr> </tbody> </table>	Thousands	Hundreds	Tens	Ones	1000		10 10	1 1 1	1000		10 10	1 1 1	1000		10 10	1 1 1		Th	H	T	O		1	0	2	3	×				3									
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	<p>Annie earns £1,325 per week. How much would he earn in 4 weeks?</p> <table border="1" style="display: inline-table; margin-right: 20px;"> <thead> <tr> <th>Thousands</th> <th>Hundreds</th> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1000</td> <td style="text-align: center;">100 100 100</td> <td style="text-align: center;">10 10</td> <td style="text-align: center;">1 1 1 1 1</td> </tr> <tr> <td style="text-align: center;">1000</td> <td style="text-align: center;">100 100 100</td> <td style="text-align: center;">10 10</td> <td style="text-align: center;">1 1 1 1 1</td> </tr> <tr> <td style="text-align: center;">1000</td> <td style="text-align: center;">100 100 100</td> <td style="text-align: center;">10 10</td> <td style="text-align: center;">1 1 1 1 1</td> </tr> <tr> <td style="text-align: center;">1000</td> <td style="text-align: center;">100 100 100</td> <td style="text-align: center;">10 10</td> <td style="text-align: center;">1 1 1 1 1</td> </tr> </tbody> </table> <table border="1" style="display: inline-table;"> <thead> <tr> <th></th> <th>Th</th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td></td> <td style="text-align: center;">1</td> <td style="text-align: center;">3</td> <td style="text-align: center;">2</td> <td style="text-align: center;">5</td> </tr> <tr> <td style="text-align: center;">×</td> <td></td> <td></td> <td></td> <td style="text-align: center;">4</td> </tr> <tr> <td></td> <td colspan="4" style="border-top: 1px solid black;"></td> </tr> </tbody> </table>	Thousands	Hundreds	Tens	Ones	1000	100 100 100	10 10	1 1 1 1 1	1000	100 100 100	10 10	1 1 1 1 1	1000	100 100 100	10 10	1 1 1 1 1	1000	100 100 100	10 10	1 1 1 1 1		Th	H	T	O		1	3	2	5	×				4					
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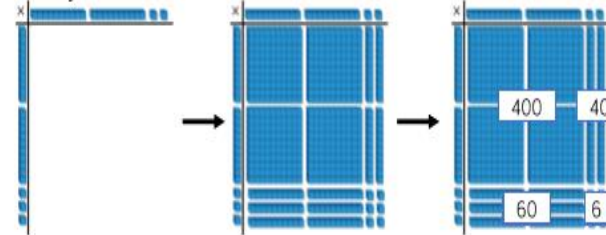
### Multiplication.

#### Multiply 2 – digits (Area Model)

Children use Base 10 to represent the area model of multiplication, which will enable them to see the size and scale linked to multiplying.

Children will then move on to representing multiplication more abstractly with place value counters and then numbers.

Whitney uses Base 10 to calculate  $23 \times 22$



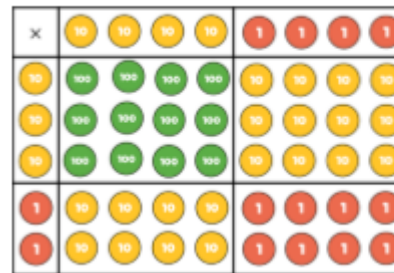
How could you adapt your Base 10 model to calculate these:

$32 \times 24$

$25 \times 32$

$35 \times 32$

Rosie adapts the Base 10 method to calculate  $44 \times 32$



×	40	4
30	1,200	120
2	80	8

#### Multiply 2-digits by 2-digits

Children will move on from the area model and work towards more formal multiplication methods. They will start by exploring the role of the zero in the column method and understand its importance.

		2	3	
×		1	4	
		9	2	( $23 \times 4$ )
	2	3	0	( $23 \times 10$ )

## Progression in Calculations. Y5

### Multiplication.

#### Multiply 3-digits by 2-digits

Children will extend their multiplication skills to multiply 3-digit numbers by 2-digit numbers. They will use multiplication to find area and solve multi-step problems.

Complete:

		1	3	2	
x			1	4	
		5	2 <sub>1</sub>	8	(132 × 4)
	1	3	2	0	(132 × 10)

#### .Multiply 4-digits by 2-digits

Children will build on their understanding of multiplying a 3-digit number by a 2-digit number and apply this to multiplying 4-digit numbers by 2-digit numbers.

Use the method shown to calculate  $2,456 \times 34$

		3	2	5	0		
x				2	6		
		1	9 <sub>1</sub>	5 <sub>3</sub>	0	0	(3,250 × 6)
	6	5 <sub>1</sub>	0	0	0		(3,250 × 20)
	8	4	5	0	0		