

Four Operations: Long Multiplication Knowledge Organiser

Key Vocabulary

Multiply	Increase a number by a certain quantity at a time.
Times	To multiply
Product of	The answer of 2 numbers multiplied together.
Lots of	X groups of numbers
Groups of	X groups of numbers increased by a certain amount
Equal	=
inverse	To use the opposite operation to check answers. For multiplication this would be divide.

Key Information

- 1 When multiplying a number by a 2 digit number you must separate out the 2 digits.
- 2 Using brackets, you must multiply by the ones to begin.
- 3 Using brackets you then multiply the number by the tens.
- 4 When multiplying the tens, you must remember to add in the place holder.

Prior Knowledge

- Y2 That multiplication of 2 numbers can be done in any order (commutative).
- Y3 A multiplication table layout can be used to multiply 2 numbers together.
- Y4 A formal method layout can be used to multiply 2 and 3 digit numbers by 1 digit numbers.
- Y5 Long multiplication means that you partition numbers to ensure they are easier to multiply.

Worked Examples

<table style="border-collapse: collapse; text-align: center;"> <tr><td>1</td><td>5</td><td>4</td></tr> <tr><td>×</td><td>2</td><td>6</td></tr> <tr><td colspan="3"> </td></tr> <tr><td>9</td><td>2</td><td>4</td></tr> <tr><td>3</td><td>0</td><td>8</td><td>0</td></tr> <tr><td>4</td><td>0</td><td>0</td><td>4</td></tr> <tr><td>1</td><td>1</td><td></td><td></td></tr> </table>	1	5	4	×	2	6				9	2	4	3	0	8	0	4	0	0	4	1	1			<p>Start with the ones.</p> <p>$154 \times 6 = 924$</p> <p>$154 \times 20 = 3080$</p> <p>$3080 + 924 = 4004$</p>
1	5	4																							
×	2	6																							
9	2	4																							
3	0	8	0																						
4	0	0	4																						
1	1																								

Worked Examples

		4	2	1	6
x				3	4
<hr/>					
	1	6	8	6	4
			2		
<hr/>					

		4	2	1	6
x				3	4
<hr/>					
	1	6	8	6	4
			2		
<hr/>					
					0

		4	2	1	6
x				3	4
<hr/>					
	1	6	8	6	4
			2		
<hr/>					
1	2	6	4	8	0

		4	2	1	6
x				3	4
<hr/>					
	1	6	8	6	4
			2		
<hr/>					
1	2	6	4	8	0
<hr/>					
1	4	3	3	4	4
	1	1	1		