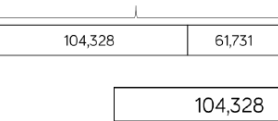


Written Calculation Methods

Skill: Add numbers with more than 4 digits
Year: 5/6





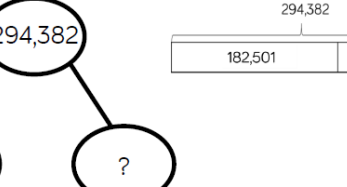
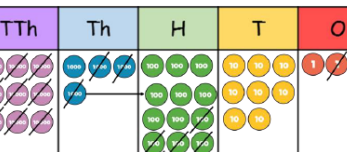
$104,328 + 61,731 = 166,059$

HTh	TTh	Th	H	T	O
100000		1000 1000 1000 1000	100 100 100	10 10	1 1 1 1 1 1
	1000 1000 1000 1000		100 100 100 100 100 100	10 10 10	1

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

Place value counters or plain counters on a place value grid are the most effective concrete resources when adding numbers with more than 4 digits.

At this stage, children should be encouraged to work in the abstract, using the column method to add larger numbers efficiently.

Skill: Subtract numbers with more than 4 digits	Year: 5/6
 $294,382 - 182,501 = 111,881$ 	Place value counters or plain counters on a place value grid are the most effective concrete resource when subtracting numbers with more than 4 digits. At this stage, children should be encouraged to work in the abstract, using column method to subtract larger numbers efficiently.

Skill: Multiply 4-digit numbers by 2-digit numbers	Year: 5/6																																													
<table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <th style="padding: 5px;">TTh</th> <th style="padding: 5px;">Th</th> <th style="padding: 5px;">H</th> <th style="padding: 5px;">T</th> <th style="padding: 5px;">O</th> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;">2</td> <td style="padding: 5px;">7</td> <td style="padding: 5px;">3</td> <td style="padding: 5px;">9</td> </tr> <tr> <td style="padding: 5px;">×</td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;">2</td> <td style="padding: 5px;">8</td> </tr> <tr style="border-top: 2px solid black;"> <td style="padding: 5px;">2</td> <td style="padding: 5px;">1</td> <td style="padding: 5px;">9</td> <td style="padding: 5px;">1</td> <td style="padding: 5px;">2</td> </tr> <tr> <td style="padding: 5px;">2</td> <td style="padding: 5px;">5</td> <td style="padding: 5px;">3</td> <td style="padding: 5px;">7</td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">5</td> <td style="padding: 5px;">4</td> <td style="padding: 5px;">7</td> <td style="padding: 5px;">8</td> <td style="padding: 5px;">0</td> </tr> <tr> <td style="padding: 5px;">1</td> <td style="padding: 5px;"></td> <td style="padding: 5px;">1</td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">7</td> <td style="padding: 5px;">6</td> <td style="padding: 5px;">6</td> <td style="padding: 5px;">9</td> <td style="padding: 5px;">2</td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> </tr> </table> 1	TTh	Th	H	T	O		2	7	3	9	×			2	8	2	1	9	1	2	2	5	3	7		5	4	7	8	0	1		1			7	6	6	9	2						When multiplying 4-digits by 2-digits, children should be confident in using the formal written method. If they are still struggling with times tables, provide multiplication grids to support when they are focusing on the use of the method. Consider where exchanged digits are placed and make sure this is consistent.
TTh	Th	H	T	O																																										
	2	7	3	9																																										
×			2	8																																										
2	1	9	1	2																																										
2	5	3	7																																											
5	4	7	8	0																																										
1		1																																												
7	6	6	9	2																																										

Skill: Divide multi-digits by 2-digits (long division)	Year: 6																														
<table> <tr><td></td><td></td><td>0</td><td>3</td><td>6</td></tr> <tr><td>1</td><td>2</td><td>4</td><td>3</td><td>2</td></tr> <tr><td></td><td>-</td><td>3</td><td>6</td><td>0</td></tr> <tr><td></td><td></td><td></td><td>7</td><td>2</td></tr> <tr><td></td><td>-</td><td></td><td>7</td><td>2</td></tr> <tr><td></td><td></td><td></td><td></td><td>0</td></tr> </table> (x30) (x6) $12 \times 1 = 12$ $12 \times 2 = 24$ $12 \times 3 = 36$ $12 \times 4 = 48$ $12 \times 5 = 60$ $12 \times 6 = 72$ $12 \times 7 = 84$ $12 \times 8 = 96$ $12 \times 9 = 108$ $12 \times 10 = 120$ $432 \div 12 = 36$			0	3	6	1	2	4	3	2		-	3	6	0				7	2		-		7	2					0	Children can also divide by 2-digit numbers using long division. Children can write out multiples to support their calculations with larger remainders. Children will also solve problems with remainders where the quotient can be rounded as appropriate.
		0	3	6																											
1	2	4	3	2																											
	-	3	6	0																											
			7	2																											
	-		7	2																											
				0																											

Skill: Subtract with up to 3 decimal places
Year: 5/6

$$\begin{array}{r} 5.43 \\ 2.7 \\ \hline \end{array}$$

$$\begin{array}{r} 4 1 \\ 5.43 \\ - 2.7 \\ \hline 2.73 \end{array}$$

5.43

←

2.7

→

?

$5.43 - 2.7 = 2.73$

Ones	Tenths	Hundredths
1 1 1 1	0.1 0.1 0.1 0.1	0.01 0.01 0.01
1	0.1 0.1 0.1 0.1	0.01 0.01 0.01

Ones	Tenths	Hundredths
1 1 1 1	0.1 0.1 0.1 0.1	0.01 0.01 0.01
1 1 1 1	0.1 0.1 0.1 0.1	0.01 0.01 0.01

Place value counters and plain counters on a place value grid are the most effective manipulative when subtracting decimals with 1, 2 and then 3 decimal places.

Ensure children have experience of subtracting decimals with a variety of decimal places. This includes putting this into context when subtracting money and other measures.

Skill: Divide multi digits by 2-digits (long division)
Year: 6

$372 \div 15 = 24 \text{ r}12$

			2	4	r	1	2
1	5	3	7	2			
-	3	0	0				
			7	2			
-			6	0			
			1	2			

$1 \times 15 = 15$
 $2 \times 15 = 30$
 $3 \times 15 = 45$
 $4 \times 15 = 60$
 $5 \times 15 = 75$
 $10 \times 15 = 150$

			2	4	$\frac{4}{5}$
1	5	3	7	2	
-	3	0	0		
			7	2	
-			6	0	
			1	2	

$372 \div 15 = 24 \frac{4}{5}$

When a remainder is left at the end of a calculation, children can either leave it as a remainder or convert it to a fraction. This will depend on the context of the question.

Children can also answer questions where the quotient needs to be rounded according to the context.