

## Using the Napier's Bones

This calculator was developed by a man called John Napier and he lived in Scotland a long time ago. It is used to simplify, and reduce mistakes when multiplying numbers. It comes with a index piece and 30 bones". (They are really sticks or rods but when some French guy translated the Napier's article about them, he used the wrong word. Silly French!) The index piece looks like this:

1
2
3
4
5
6
7
8
9

### Multiplying 1 digit by 1 digit.

Now grab a "7" bone (The one with a big "7" on top) and place it next to the index piece. You now have all the multiples of 7.

1	7	$1 \cdot 7 = 7$
2	$\begin{array}{r} 1 \\ \hline 4 \end{array}$	$2 \cdot 7 = 14$
3	$\begin{array}{r} 2 \\ \hline 1 \end{array}$	$3 \cdot 7 = 21$
4	$\begin{array}{r} 2 \\ \hline 8 \end{array}$	$4 \cdot 7 = 28$
5	$\begin{array}{r} 3 \\ \hline 5 \end{array}$	$5 \cdot 7 = 35$
6	$\begin{array}{r} 4 \\ \hline 2 \end{array}$	$6 \cdot 7 = 42$
7	$\begin{array}{r} 4 \\ \hline 9 \end{array}$	$7 \cdot 7 = 49$
8	$\begin{array}{r} 5 \\ \hline 6 \end{array}$	$8 \cdot 7 = 56$
9	$\begin{array}{r} 6 \\ \hline 3 \end{array}$	$9 \cdot 7 = 63$

### Multiplying 1 digit by several digits.

We are now going to find all the single digit multiples of 407

Place the "4", "0", and "7" bones next to the index piece. Read across the row to see the values. Each value is the sum of the bottom corner of a square and the top value of the square to the right.

1	4	0	7	$1 \cdot 407 = 407$
2	8	0	14	$2 \cdot 407 = 814$
3	12	0	21	$3 \cdot 407 = 1221$
4	16	0	28	$4 \cdot 407 = 1628$
5	20	0	35	$5 \cdot 407 = 2035$
6	24	0	42	$1 \cdot 407 = 2442$
7	28	0	49	$1 \cdot 407 = 2849$
8	32	0	56	$1 \cdot 407 = 3256$
9	36	0	63	$1 \cdot 407 = 3663$

### Multiplying 1 digit by several digits.

We are now going to multiply 125 times 407. Using the same bones calculate the multiples of 1, 2, and 5:

1	4	0	7	407
2	8	0	14	814
3	12	0	21	
4	16	0	28	
5	20	0	35	2035
6	24	0	42	
7	28	0	49	
8	32	0	56	
9	36	0	63	

  

2035
814
<u>407</u>
50875

Write down the 5 multiple (2035) . Now below, write down the 2 multiple (814), remembering to shift it left by one digit. Now below write down the 1 multiple (407). remembering to shift it left two digits. Now add these numbers together and you get the answer (50,875).

*With these bones, multiplication become easy, with less chance of making a mistake. Enjoy.*