

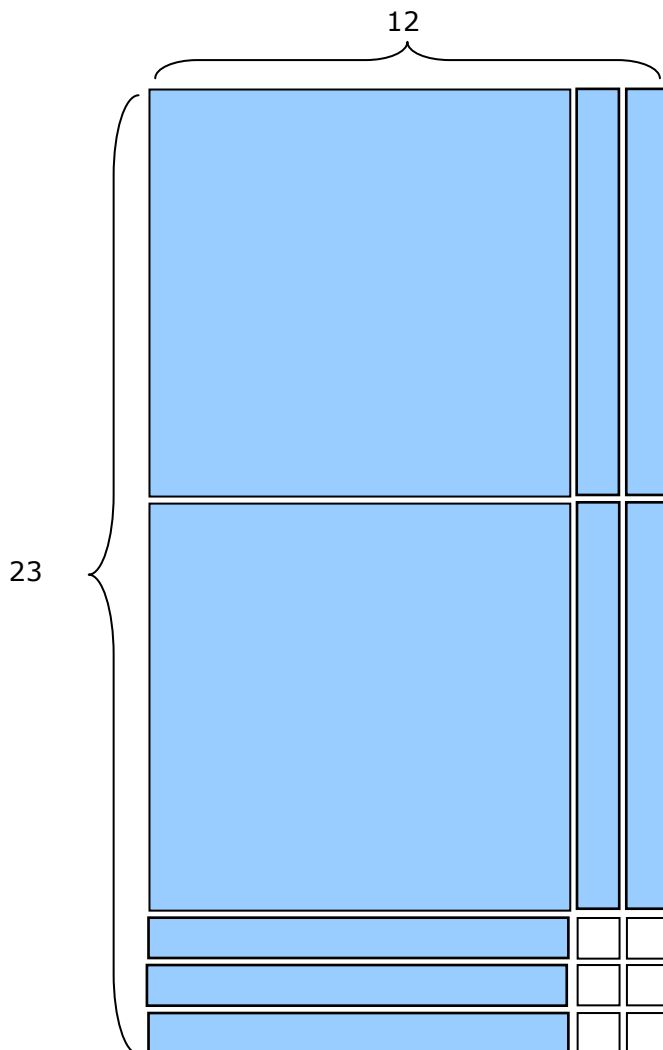
## Asking for Arrays: 12 x 23

Standard algorithm (below, left) and an expanded version showing the partial products (below, right)

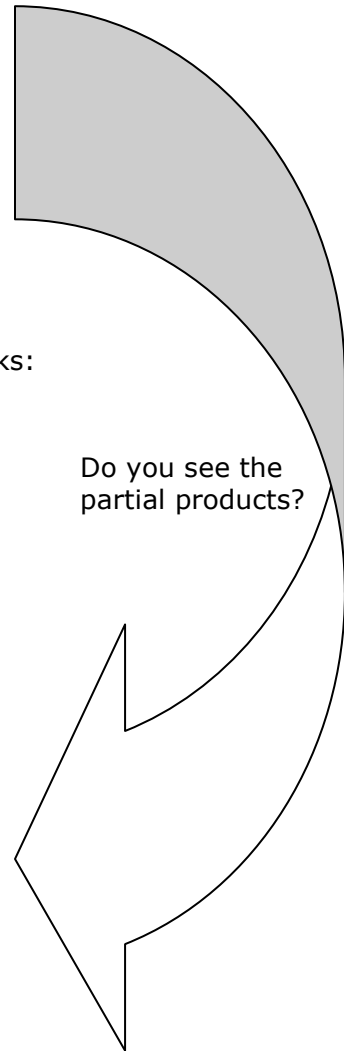
$$\begin{array}{r} 12 \\ \times 23 \\ \hline 36 \\ \underline{240} \\ 276 \end{array}$$

$$\begin{array}{r} 12 \\ \times 23 \\ \hline 6 \\ 30 \\ 40 \\ \underline{200} \\ 276 \end{array}$$

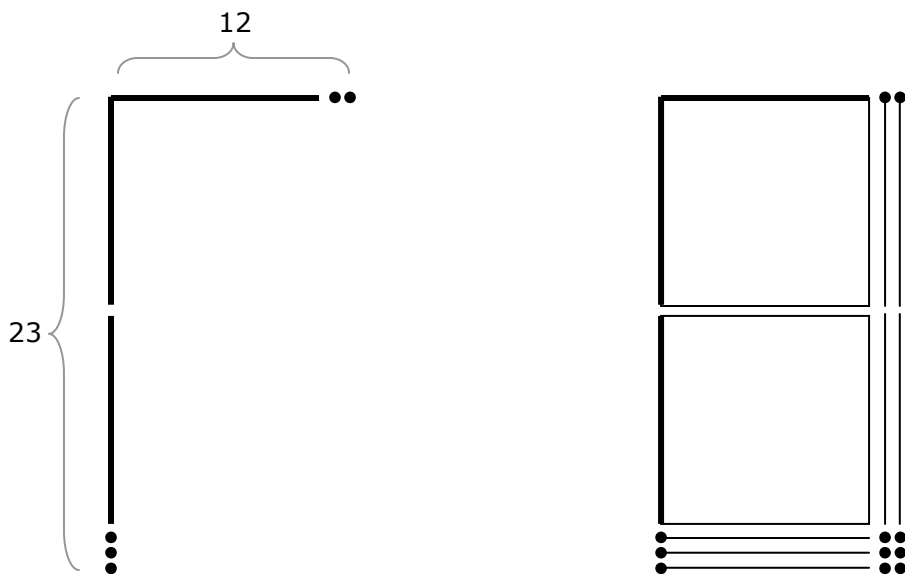
You can build that expression as a rectangular array with base 10 blocks:



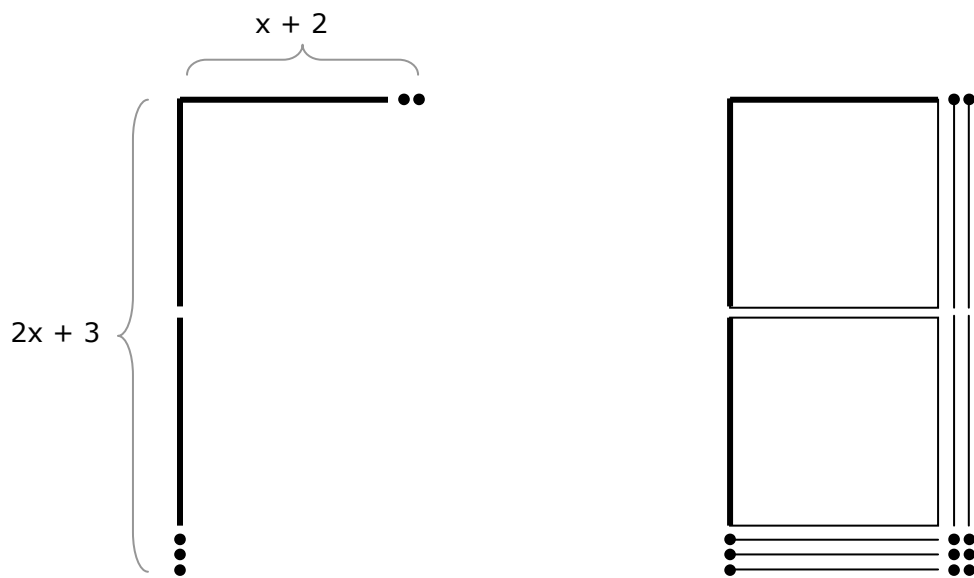
Do you see the partial products?



You can diagram that—or any other rectangular array—first putting in the dimensions (left), then filling it in (right):



If we let  $x = 10$ , we can substitute:



This algebraic multiplication should look pretty similar to the arithmetic multiplication on the previous page—and it should be pretty easy to recognize the partial products:

$$\begin{array}{r}
 x + 2 \\
 2x + 3 \\
 \hline
 6 \\
 3x \\
 4x \\
 \hline
 2x^2 \\
 2x^2 + 7x + 6
 \end{array}$$