Resource Page

Multiplication using Base-Ten Blocks

$100 + 20 + 30 + 6 = 156$

	10	+	3
10	100		30
+ 2	20		6

Traditional Algorithm 1

$$\begin{array}{r} 12 \\ \times\ 13 \\ \hline 6 \\ 30 \\ 20 \\ +100 \\ \hline 156 \end{array}$$

$= 2 \times 3$
$= 10 \times 3$
$= 10 \times 2$
$= 10 \times 10$

Traditional Algorithm 2

$$\begin{array}{r} 12 \\ \times\ 13 \\ \hline 36 \\ +120 \\ \hline 156 \end{array}$$

Area Model

$125 \times 45 = 5,625$

x	100	20	5
40	4,000	800	200
5	500	100	25

$$\begin{array}{r} 4,000 \\ 800 \\ 200 \\ 500 \\ 100 \\ +\ \ 25 \\ \hline 5,625 \end{array}$$

Multiplication with the Distributive Property

$5 \times 14 = 70$

$5 \times 14 = (5 \times 10) + (5 \times 4)$ ⟶ $5 \times 10 = 50$

$5 \times 4 = \underline{20}$

70

Partial Product:

$14 \times 36 = 504$

x	30	+	6
10	300		60
+ 4	120		24

$$\begin{array}{r} 300 \\ 60 \\ 120 \\ +\ \ 24 \\ \hline 504 \end{array}$$

There are 225 dozen cookies in the bakery. How many cookies are there?

Student 1	Student 2	Student 3
225×12 I broke 12 up into 10 and 2. $225 \times 10 = 2{,}250$ $225 \times 2 = 450$ $2{,}250 + 450 = 2{,}700$	225×12 I broke 225 up into 200 and 25. $200 \times 12 = 2{,}400$ I broke 25 up into 5×5, so I had $5 \times 5 \times 12$ or $5 \times 12 \times 5$. $5 \times 12 = 60$ $60 \times 5 = 300$ Then I added 2,400 and 300. $2{,}400 + 300 = 2{,}700$	I doubled 225 and cut 12 in half to get 450×6. Then I doubled 450 again and cut 6 in half to 900×3. $900 \times 3 = 2{,}700$

Draw an array model for 225 x 12

200 x 10, 200 x 2, 20 x 10, 20 x 2, 5 x 10, 5 x 2

225 × 12

	200	20	5
10	2,000	200	50
2	400	40	10

```
    2,000
      400
      200
       40
       50
  +    10
    2,700
```