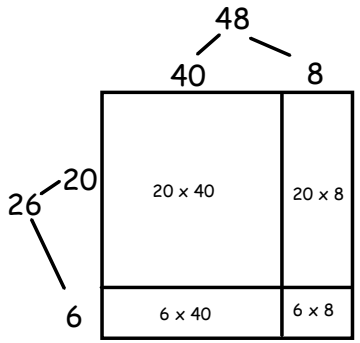
# Multiplication 4 ways

Name _____

## Array Model with Partial Products

26 x 48 =

Array Model




Equations

26 x 48 =

(20 x 40) + (20 x 8) + (6 x 40) + (6 x 8) =
800 + 160 + 240 + 48 =

20 x 40 = 800

20 x 8 = 160

6 x 40 = 240

6 x 8 = 48

$$\begin{array}{r} {\scriptstyle 1}\\ 800\\ +\ 160\\ 240\\ 48\\ \hline 1{,}248 \end{array}$$

## Making an Easier Problem

29 x 15 =

29 **groups of** 15

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |

Add an extra group of 15

Think of 30 **groups of** 15 to make the problem easier

30 x 15 =

3 x 15 = 45

This has an extra group of 15

30 x 15 = 450

450 - 15 = 435

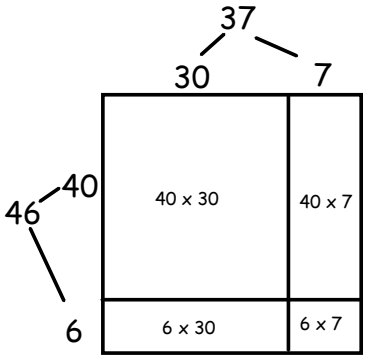
Now you have to subtract the extra group!

## Using Vertical Partial Products

46 x 37 =

Remember to think about the VALUE of the digits that you are multiplying!!!

Array Model




$$\begin{array}{r} 46\\ \times\ 37\\ \hline 42 \leftarrow 7 \times 6\\ {\scriptstyle 2}\ 280 \leftarrow 7 \times 40\\ +\ 180 \leftarrow 30 \times 6\\ 1{,}200 \leftarrow 30 \times 40\\ \hline 1{,}702 \end{array}$$

## Multiplying 1 digit by 4 digits using Partial Products

1,548 x 5 =

1,548

| | 1,000 | 500 | 40 | 8 |
|---|---|---|---|---|
| 5 | 5 x 1,000 = | 5 x 500 = | 5 x 40 = | 5 x 8 = |

5 x 1,000 = 5,000
5 x 500 = 2,500
5 x 40 = 200
5 x 8 = 40
7,740