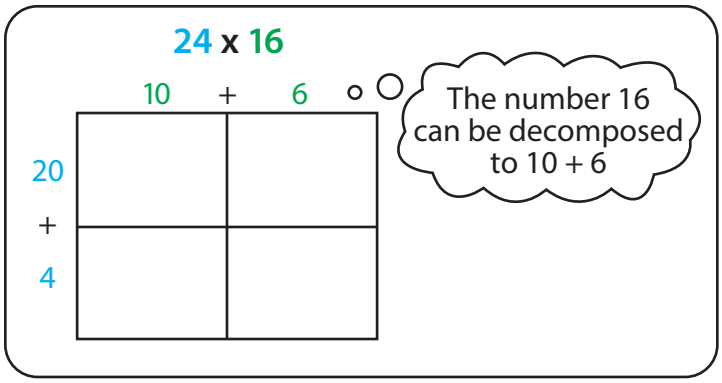
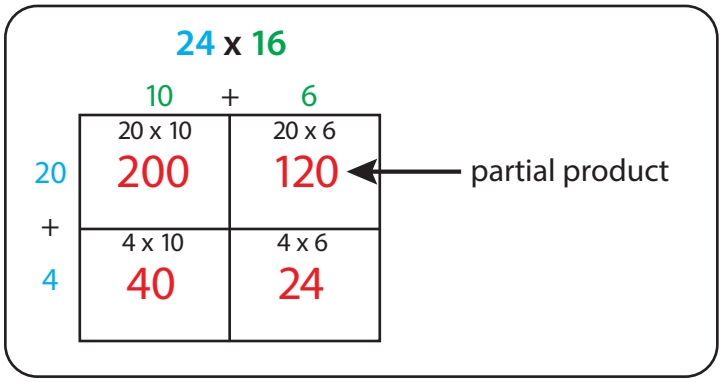
Name: _____ Date: _____

An Introduction to Area Model

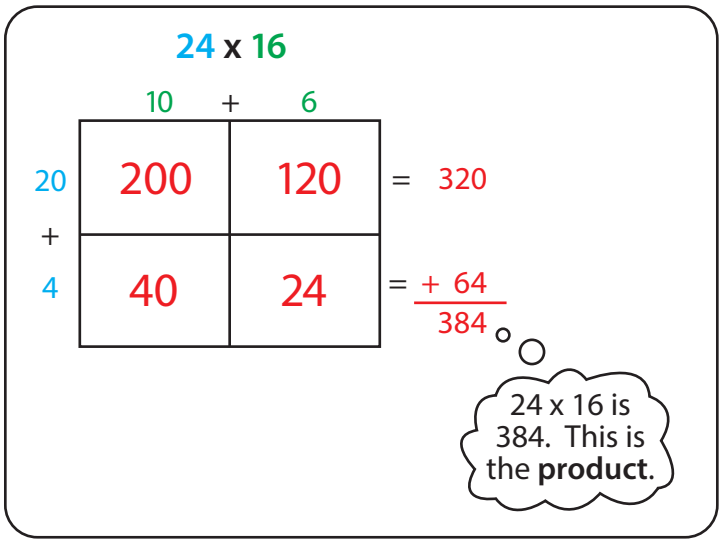
The **area model** is a way to multiply using a visual model of a box. Each side of the box is labeled with **factors** (the numbers that are being multiplied). The factors are **decomposed** (separated) into tens and ones, which are easier to multiply with mental math.



Since we know that the area of a rectangle can be found by multiplying **length x width**, we can use the visual model to find the area of each box. This means that each rectangle, or box, in the model represents a portion of the total answer.



When the answers in each box, called **partial products**, are added together, we will get the total **product** (answer) for the multiplication problem.



* This strategy is sometimes called the **box method** or **generic rectangle**.

Why do we use this strategy?

The area model strengthens our foundational understanding of multiplication, supports flexible thinking and number sense, connects to concepts of area that we have learned, and builds our competency in mental math, which will help us in real world situations. It can be used for day-to-day computation or as a bridge to understanding the standard algorithm.

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An Introduction to Area Model

Try it! Solve each problem using an area model.

Example

13 x 57

	10	+	3	
50	500		150	= 650
+				
7	70		21	= 91

650 + 91 = 741

∴ 13 x 57 = 741

25 x 31

	20	+	5	
30				=
+				
1				=

∴ 25 x 31 =

17 x 42

		+		
+				=
				=

∴ _____ x _____ = _____

62 x 23

This time, draw your own area model to solve!

14 x 35

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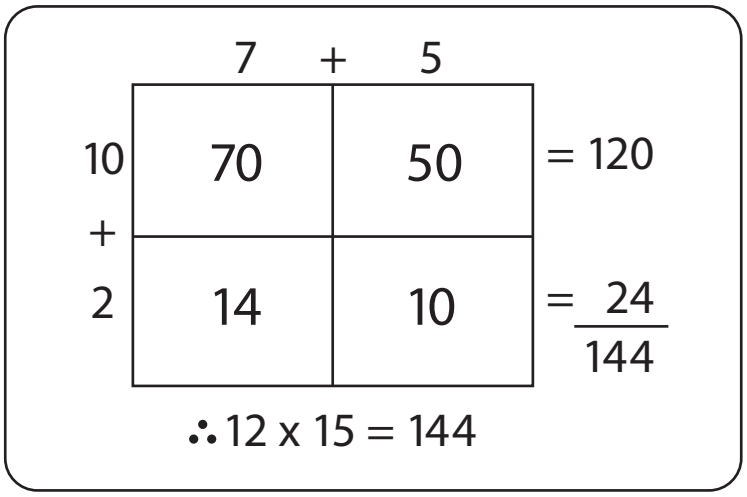
An Introduction to Area Model

Let's Review! Fill in each blank with the correct vocabulary word.

1. Area model is sometimes called _____ or _____.
2. The answer to a multiplication problem is called the _____.
3. When we separate a number into smaller parts that are easier to use in mental math, we have _____ the number.
4. The formula for finding the area of a rectangle is _____ x _____.
5. Numbers that are multiplied together to get an answer are called _____.
6. A portion or part of an answer to a multiplication problem is called a _____.
7. What is one reason to use this strategy for multiplication? _____

_____

8. Paul tried using an area model to solve the problem 12 x 15, but he made a mistake.



What would you tell Paul to help him correct his mistake?

_____

_____

_____

_____

_____