

Array Product Lab

Use models and equations to multiply two-digit numbers.

GRADE 4 • TEKS 4.4.C

4.4.C "represent the product of 2 two-digit numbers using arrays, area models, or equations, including perfect squares through 15 by 15;"

NAME _____

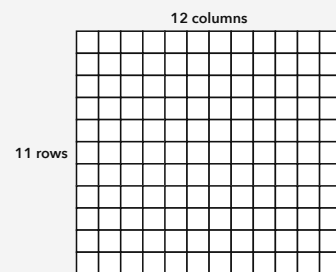
DATE _____

BUILD THE PRODUCT

An array has equal groups in each row and equal groups in each column. You can break a two-digit factor into tens and ones, find smaller products, and add them to find the total.

WORKED EXAMPLE

Look at the array. What is the product?

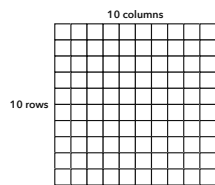


1. The array has 11 rows and 12 columns.
2. Break 12 into $10 + 2$.
3. $11 \times 10 = 110$ and $11 \times 2 = 22$.
4. $110 + 22 = 132$.

Answer: 132

PRACTICE 6 problems

- 1** Look at the array. Write a multiplication equation for its product.



ANSWER _____

- 2** Use partial products to find 13×14 . Write the two partial products and the sum.

ANSWER _____

- 3** Find 15×15 . This is a perfect square.

ANSWER _____

- 4** Find 13×13 . This is a perfect square.

ANSWER _____

- 5** Find 14×15 .

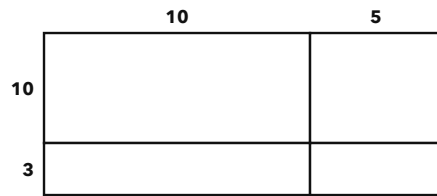
ANSWER _____

- 6** Find 10×14 .

ANSWER _____

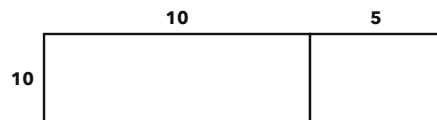
APPLY IT Show your work

- 1** A game club puts collectible cards in an array shown by the area model. How many cards are in the display?



ANSWER _____

- 2** A school library arranges new books in the array shown by the area model. How many books are arranged?



ANSWER _____

CHALLENGE One step up

Maya says that 14×14 is greater than 13×15 . Is Maya correct? Explain by finding both products.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Look at the array. Write a multiplication equation for its product.	$10 \times 10 = 100$
2	Use partial products to find 13×14 . Write the two partial products and the sum.	$10 \times 14 = 140$, $3 \times 14 = 42$; $140 + 42 = 182$
3	Find 15×15 . This is a perfect square.	225
4	Find 13×13 . This is a perfect square.	169
5	Find 14×15 .	210
6	Find 10×14 .	140

PART 2 • APPLY IT

1. **195 cards** The model shows 13 rows of 15 cards. Multiply $13 \times 15 = 195$.
2. **150 books** The model shows 10 rows of 15 books. Multiply $10 \times 15 = 150$.

CHALLENGE

Yes. $14 \times 14 = 196$, and $13 \times 15 = 195$, so 14×14 is greater by 1.

Accept any correct partial-products equation or area-model decomposition that gives the stated product. For the challenge, accept an explanation that correctly compares 196 and 195.