

Subject: Math

Topic: Arrays, Factors

Title: Arrays

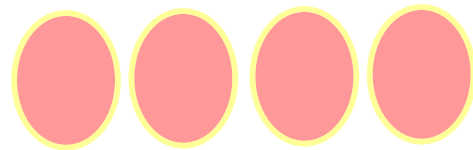
Grades: 4, 5

Intended learning outcome:

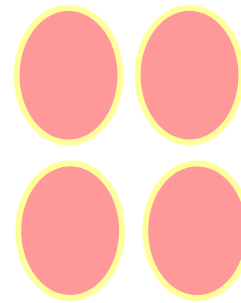
- **Students will create arrays and number sentences for given numbers by identifying factor pairs of said number.**

Arrays are rows and columns that form a rectangle and represent a given number.

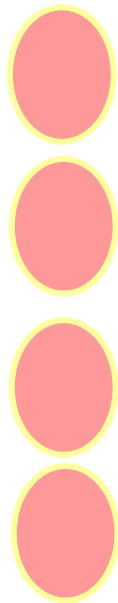
Ex: 4 can be made into three different arrays:



$$1 * 4 = 4$$

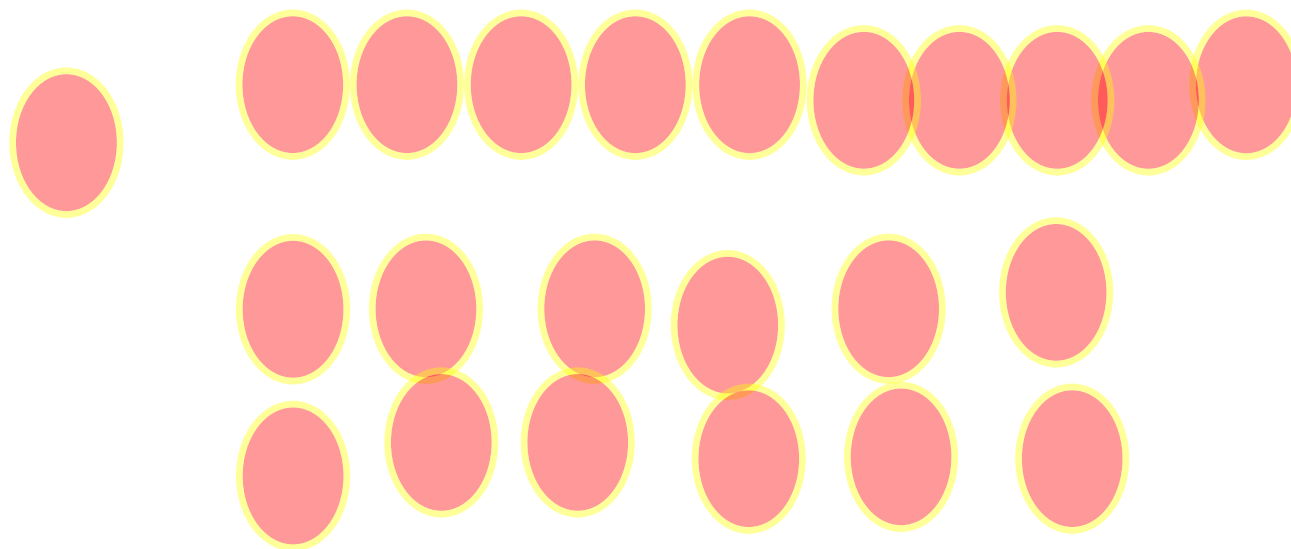


$$2 * 2 = 4$$



$$4 * 1 = 4$$

Arrange **12** counters into as many rectangular arrays as you can.



R O W

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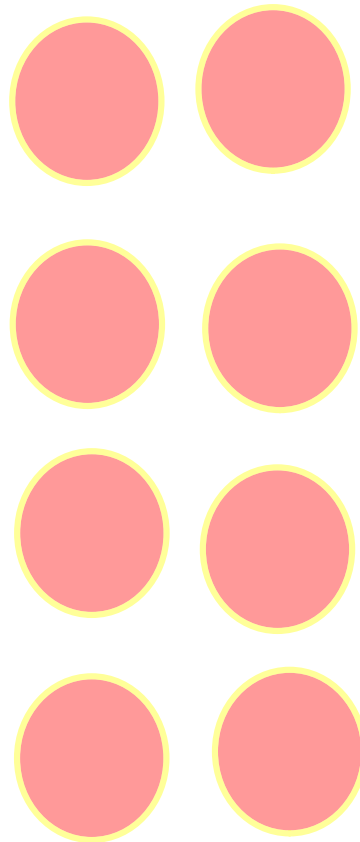
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**What multiplication fact
does this array model?**

$$4 * 2 = 8$$

factors product



C

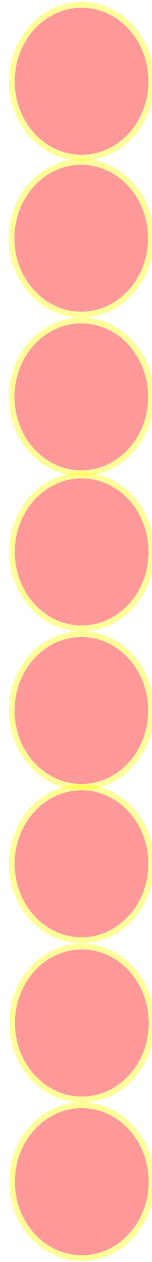
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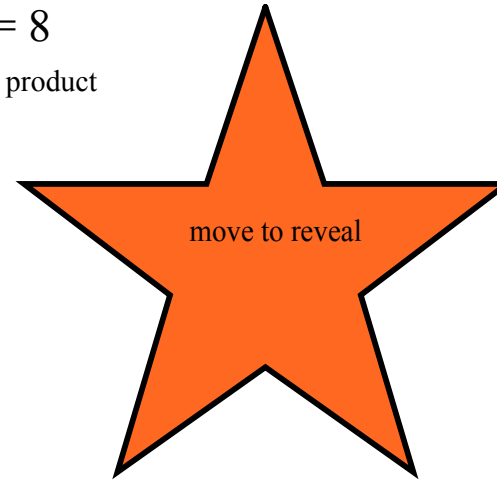


R O W

**What multiplication fact
does this array model?**

$$8 * 1 = 8$$

factors product

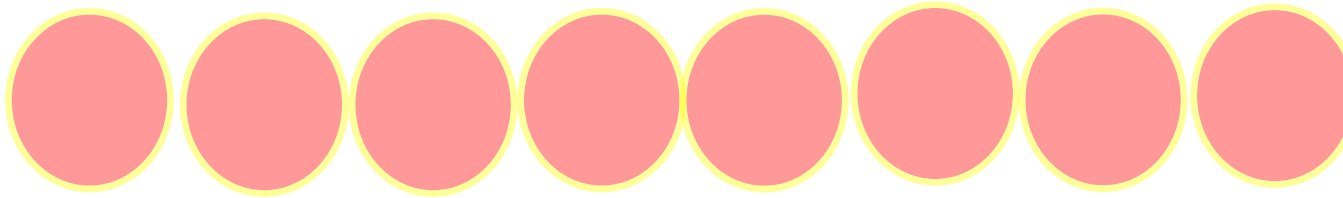


R O W

**What multiplication fact
does this array model?**

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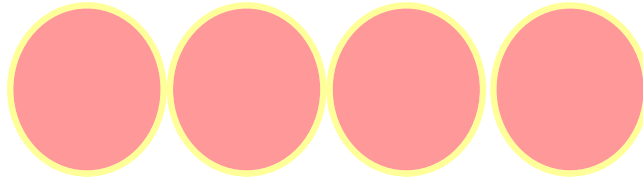


M

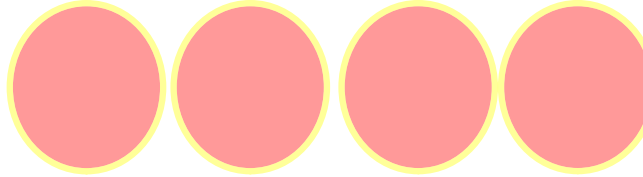
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What multiplication fact does this array model?

factors - numbers you multiply to get a product

product - answer to a multiplication problem

array - arrangement of objects into rows and columns that form a rectangle

Find the factors of 24. (Think of all the ways to multiply to get 24).
List the factors in number order.

24: 1,2,3,4,6,8,12,24

Make the arrays for 24.



Make the arrays for 36.



Find the mystery number !



*This number of tiles
will make a rectangle
that is 2 tiles wide
(Row)*

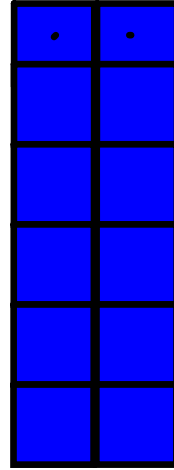
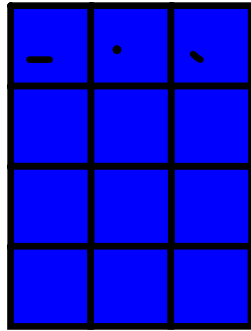
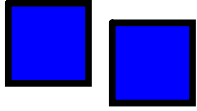
*This number of tiles
will make a rectangle
that is 3 tiles wide
(Row)*

Find the mystery number !



*This number of tiles
will make a rectangle
that is 8 tiles wide
(Row)*

*This number of tiles
will make a rectangle
that is 17 tiles wide
(Row)*



$$4 \times 3$$

$$6 \times 2$$

$$12$$

1, 2, 3, 6

7, 14, 21, 42

Composite

1

3

9

1 1

.

✓

1

2

Both Clues must fit

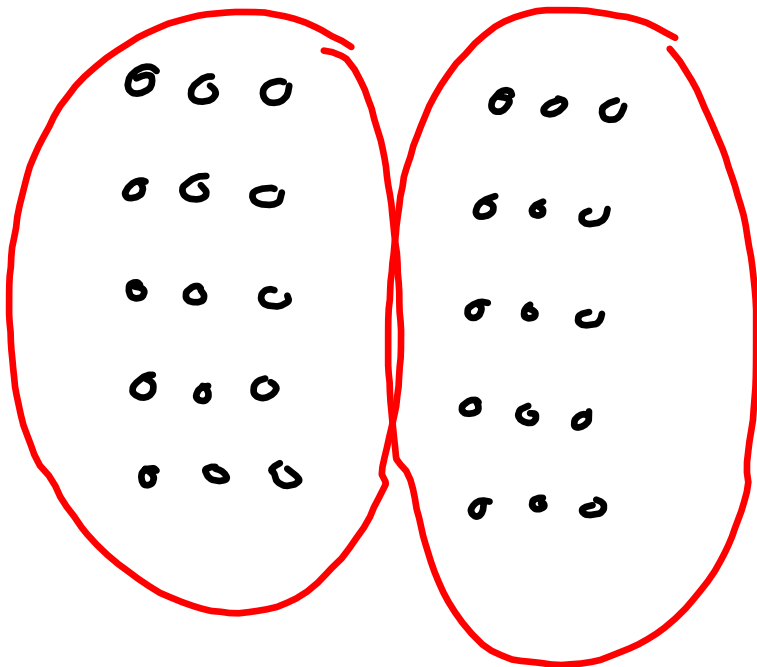
This number of tiles will make a rectangle that is 2 tiles wide.

This number of tiles will make a rectangle that is 3 tiles wide

Factors and Multiples

Multiples of a number are what you say when you count by that number.

Factors of a number are the sides of rectangles with that number of tiles. (When you times the factors of a number, they equal the product)



$$5 \times 3 \times 2 = 30$$

$$5 \times 6 = 30$$

$$* 5 + 2 \times 6 = 30$$

$$15 \times 2$$

$$\begin{array}{c} \cdot \\ \cdot \\ \cdot \end{array} \begin{array}{c} \cdot \\ \cdot \\ \cdot \end{array} \quad 1 \times 5 = 5 = \text{Prime \#}$$

