

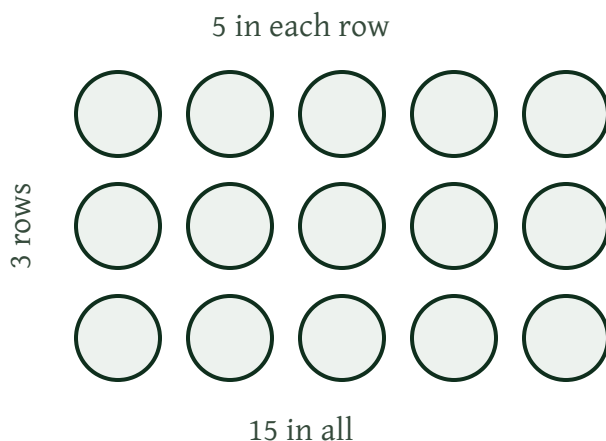


*Stuck? Scan
for the anchor
chart*

WHAT DIVISION MEANS • SET 2 • GRADE 3

Arrays: Division You Can See

An **array** is anything lined up in rows and columns.
One array answers three questions at once.



$$3 \times 5 = 15$$

How many in all?

$$15 \div 3 = 5$$

3 rows. How many in each row?

$$15 \div 5 = 3$$

5 in each row. How many rows?

Egg cartons, muffin tins, window panes, keyboard keys: the world is full of arrays. This set teaches you to read them.

Roots of Reason

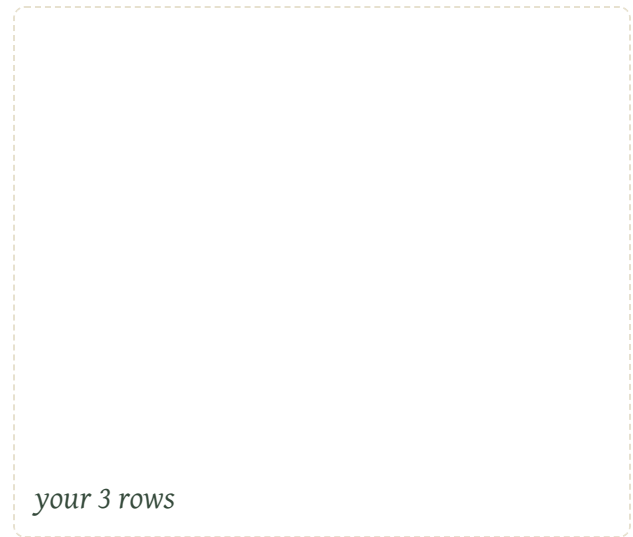
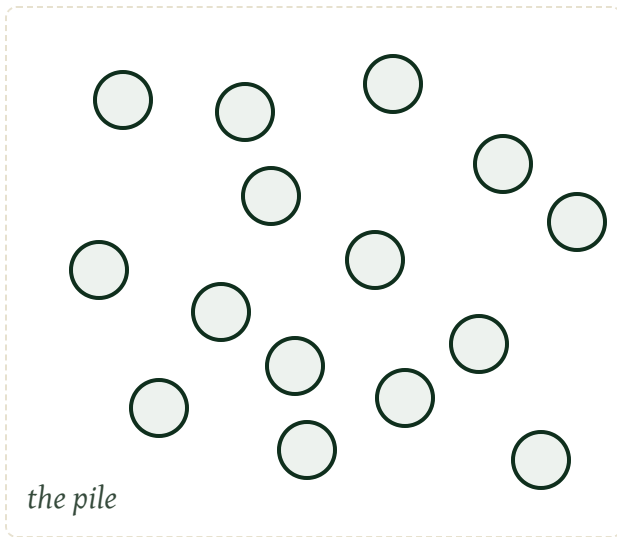
Arrays · Set 2

Name _____ Date _____

From a Pile to an Array

A pile hides its number. An array shows it.

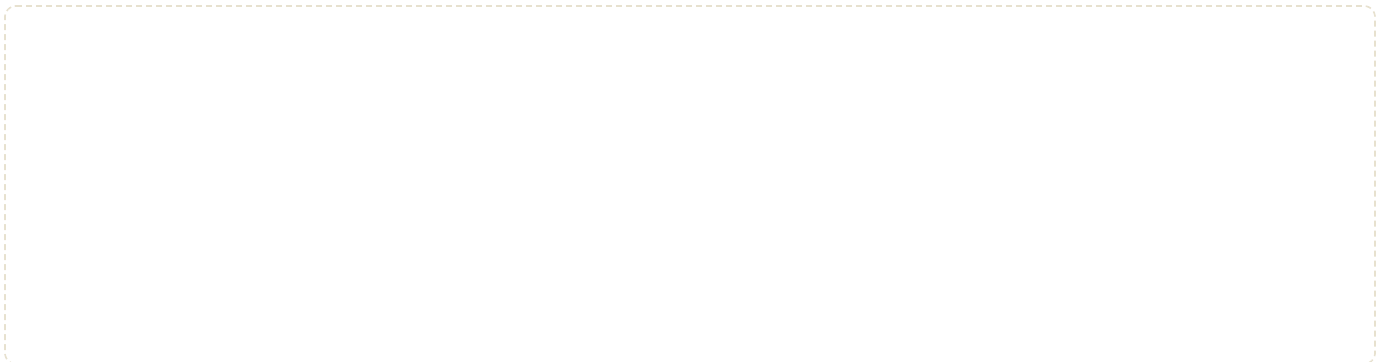
1. Here is a messy pile of 15 buttons. Draw them again in the box as **3 equal rows**. Cross off each button as you use it.



Each row has

buttons. $15 \div 3 =$

2. Now the other direction: take 12 buttons and make **rows of 4**. Draw the array. How many rows did you need?

 $12 \div 4 =$

rows

Roots of Reason

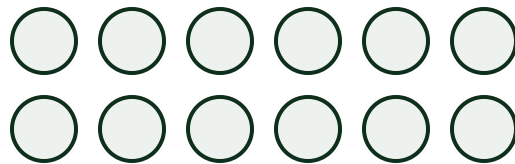
Arrays · Set 2

Name _____ Date _____

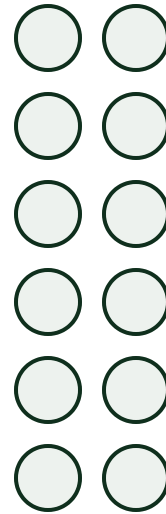
Turn It Sideways

Tip an array on its side. Nothing is added, nothing is lost.
That is why one array knows **four** facts.

1. Same 12 buttons, two ways. Count the rows in each. Then write the whole fact family below.



2 rows of 6



6 rows of 2

$2 \times 6 =$

$6 \times 2 =$

$12 \div 2 =$

$12 \div 6 =$

2. Draw an array that proves $10 \div 5 = 2$. Any orientation you like. Label your rows.

Roots of Reason

Arrays · Set 2

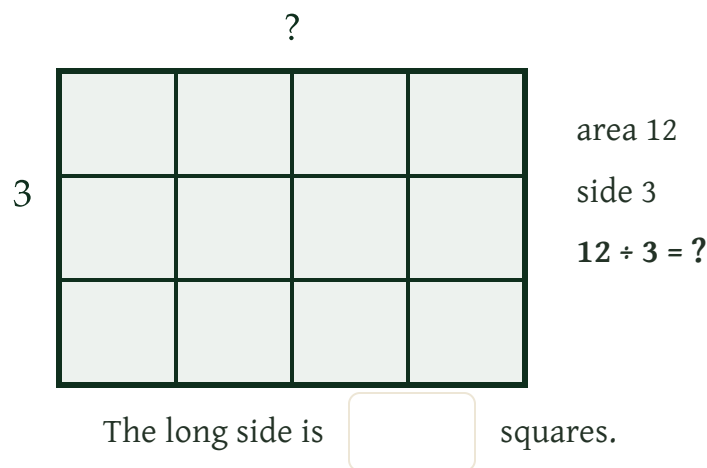
Name _____ Date _____

The Missing Side

Squish an array's dots together and you get **area**.

Division finds the side you cannot see.

1. This rug covers **12 squares**. Its short side is **3 squares**. Count across the top to find the long side.



2. A garden covers **20 squares**. One side is **5**. Draw the garden on the grid: start at any corner, make one side exactly 5, and keep going until you have colored 20 squares. What is the other side?



$20 \div 5 =$

Roots of Reason

Arrays · Set 2

Name _____ Date _____

Arrays Hide Everywhere

Go on an array hunt. Egg cartons. Window panes.
Muffin tins. Chocolate bars. Find one.

1. Put a photo or drawing of YOUR array here. It must have equal rows.



Your array photo goes here

or draw it here

2. Now read your array like a mathematician:

My array has rows with in each row.

That is in all.

Its division fact: ÷ =



WHAT DIVISION MEANS · SET 2 · GRADE 3

Answer Key and Teacher Notes

From a Pile to an Array (page 2)

1. Each row has **5**; $15 \div 3 = 5$ 2. $12 \div 4 = 3$ rows

Turn It Sideways (page 3)

1. $2 \times 6 = 12$, $6 \times 2 = 12$, $12 \div 2 = 6$, $12 \div 6 = 2$ 2. Any array with **2 rows of 5 or 5 rows of 2**

The Missing Side (page 4)

1. Long side = **4** squares 2. $20 \div 5 = 4$ (any 5-by-4 rectangle on the grid counts)

Arrays Hide Everywhere (page 5)

Answers vary. Check that the rows are equal and the division fact matches the picture: total $\div$ rows = per row (or total $\div$ per row = rows). A standard egg carton reads **$12 \div 2 = 6$** .

Page 2 is the heart of the set: turning a pile into rows IS the act of dividing. If a student arranges 15 buttons into 3 unequal rows without noticing, stop there and share out one by one before moving to page 3. The rotation on page 3 quietly buys you the whole fact-family strategy, and page 4 converts it to area, where grade 4 multiplication will pick it up.