



Cover an Array

Tips for teaching!!!

- I highly recommend teaching this game in a small group where you can ask questions to enhance your students understandings of fractions, arrays, and multiplication.
- You may want to start with a base ten block and teach the game with that. The students could easily use their ones and tens to cover up the base ten block as you play the game together. You could say things like cover up $\frac{1}{2}$ of the whole. Cover up $\frac{1}{5}$ of the whole, ect.
- When you are introducing the game, play the game and say your thinking out loud. Some students may be really confused if they pull a fraction that has $\frac{1}{3}$ on it, but there aren't any more rows or columns with $\frac{1}{3}$ in it. They will need to see how you change $\frac{1}{3}$ into an equivalent fraction so they can now color in the small boxes.

Questions to ask at the start of the game.

- What is your whole? How many columns, rows, small boxes are in the whole?
- What is the fraction that is shaded in underneath your whole? How do you know? How did you figure that out?
- What is the fraction to the right of your whole? How do you know? How did you figure that out?
- What are the dimensions of the array? What is the area of the array?

Questions to ask while playing the game.

- What is the best way to use this fraction? Should you color in rows, columns, or small boxes? Why?
- How did you figure out what you needed to color in?
- What fraction do you need to draw to win?
- How much of your array is left to shade in?
- What is the total you have shaded in already?
- What fraction do you hope to draw this time? Why?
- Why is _____ fraction not used in this game? Is it impossible to use? (Example of an answer may be, "No, we could shade in half of a small box.")

Materials:

Two of the same arrays laminated

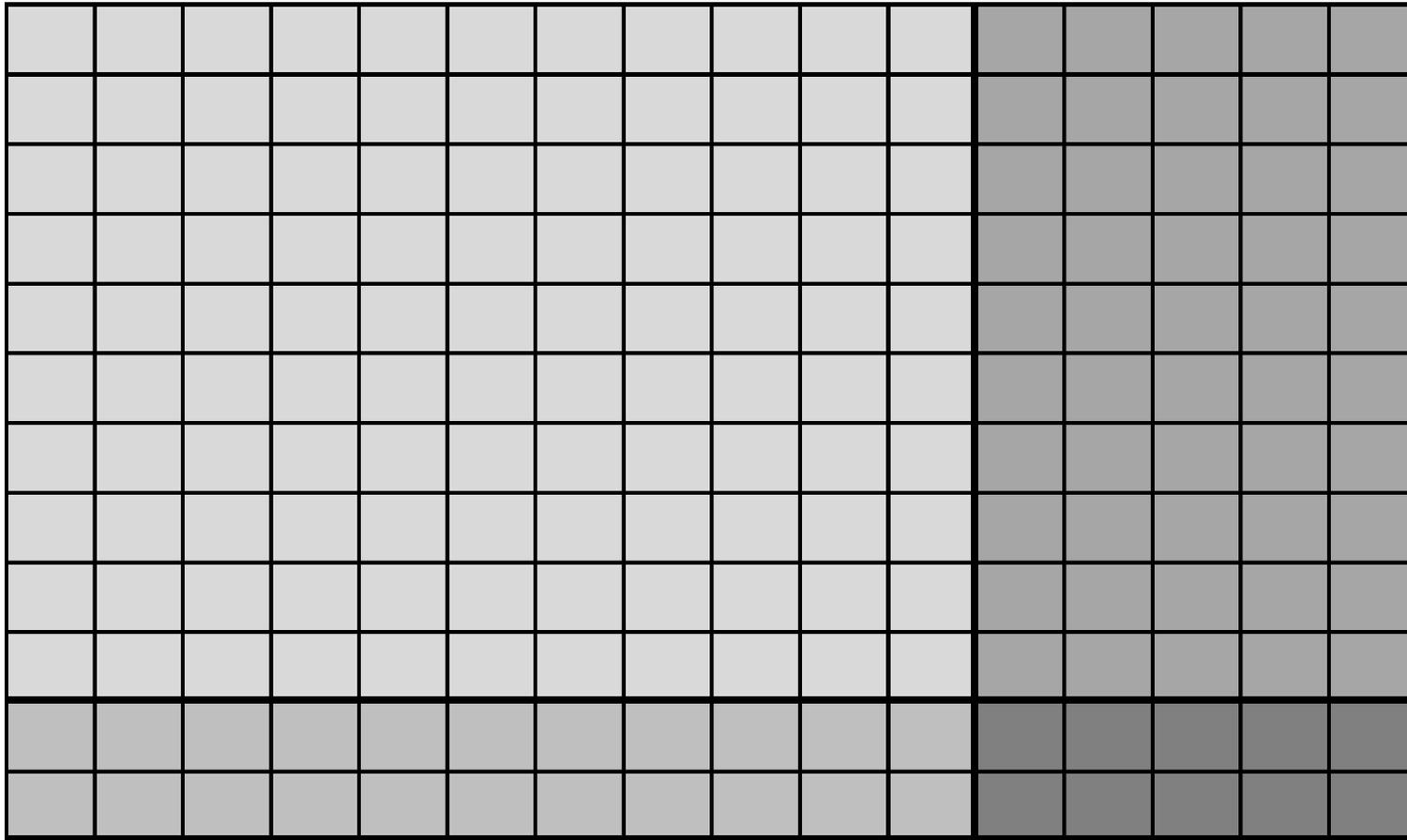
Dry erase marker

Faction cards - look at the top of your array card to make sure you are using the right fraction pieces

Rules

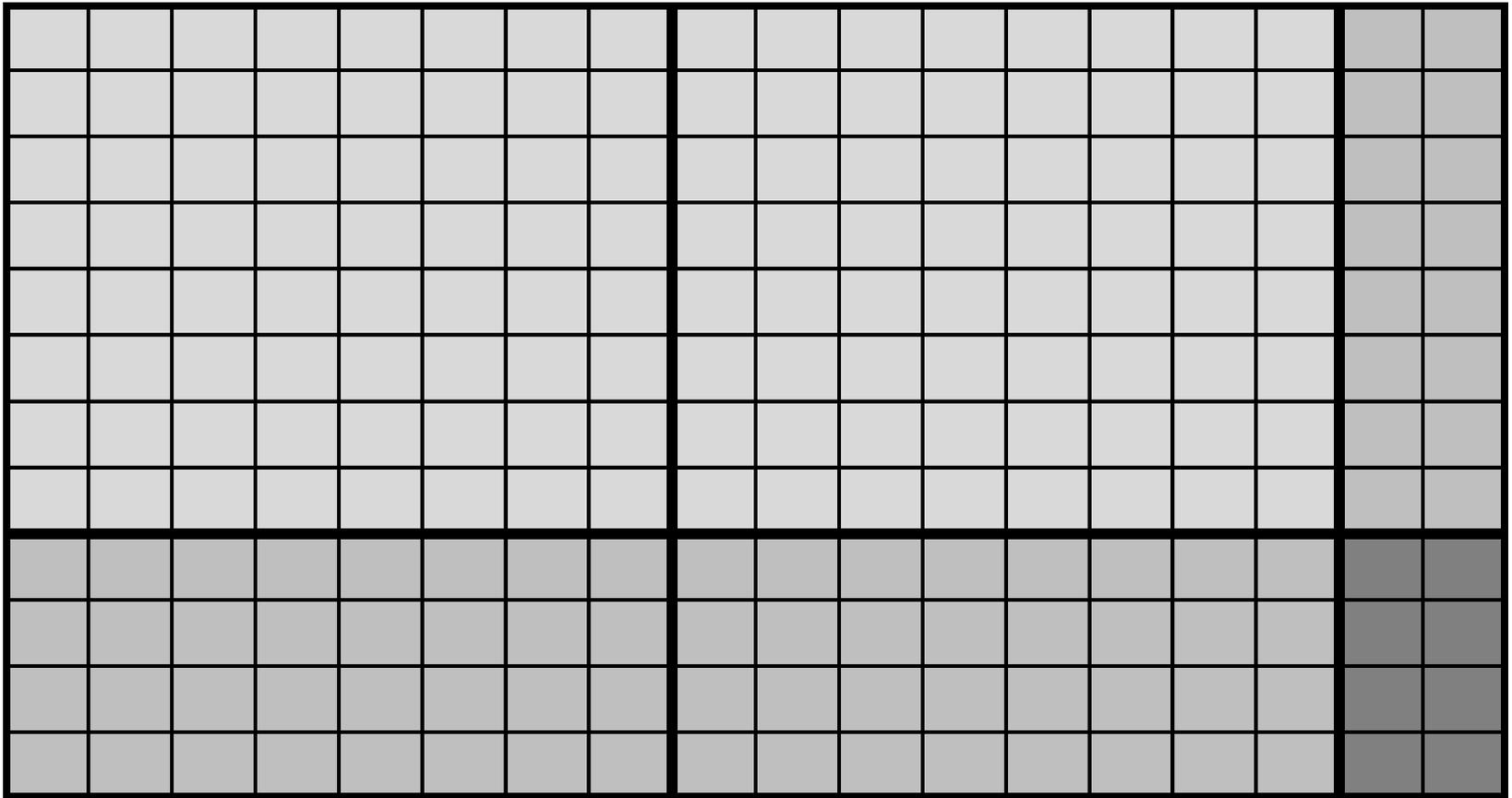
1. Player one draws a fraction card and colors in that fraction based on what 1 equals in the array. The first square in the array equal 1 whole. (Example: If the square is a 10x10 and the player draws $\frac{1}{2}$ then the player will color in 50 small squares or 5 rows.) When finished the player put the fraction face down at the bottom of the pile.
2. Player two than draws a card and colors in that fraction based on what 1 equals in the array.
3. The players continue to take turn. Whoever fills up the whole array first, wins.
4. To make the game more challenging you could have to fill up the array exactly, or if you go over you have to erase that amount instead of add.

Array 1 - One whole equals a 10 x 10 square
use fraction pieces $\frac{1}{2}$, $\frac{1}{5}$, and $\frac{1}{10}$

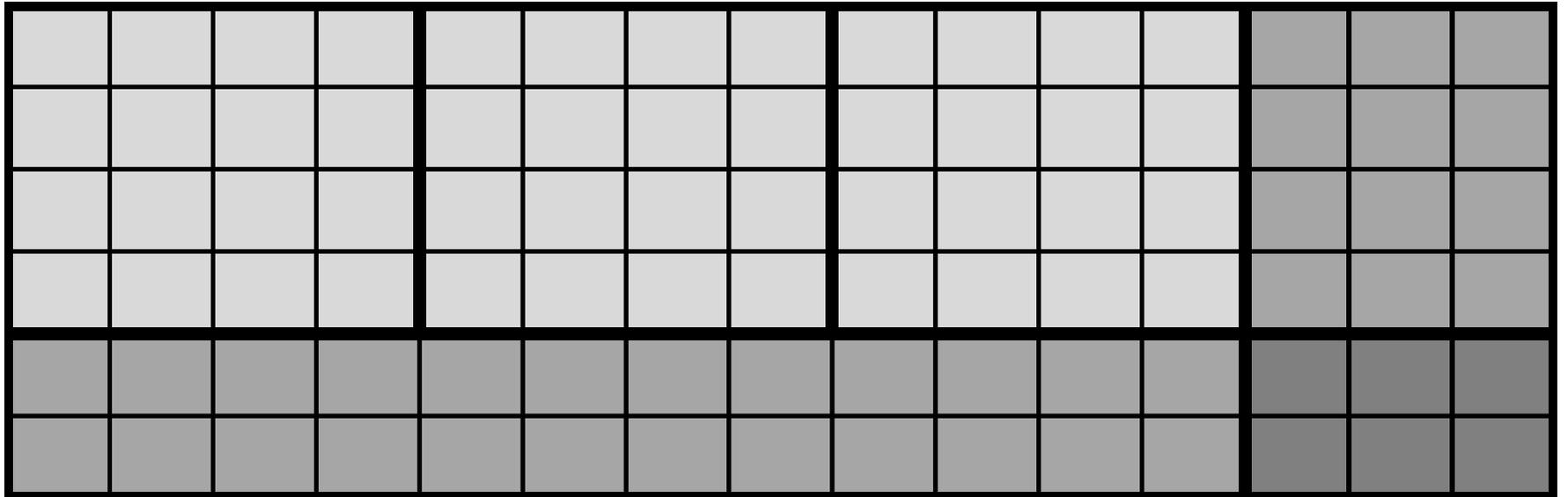


Array two - one whole equals an 8 x 8 square.

use fraction pieces $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{8}$

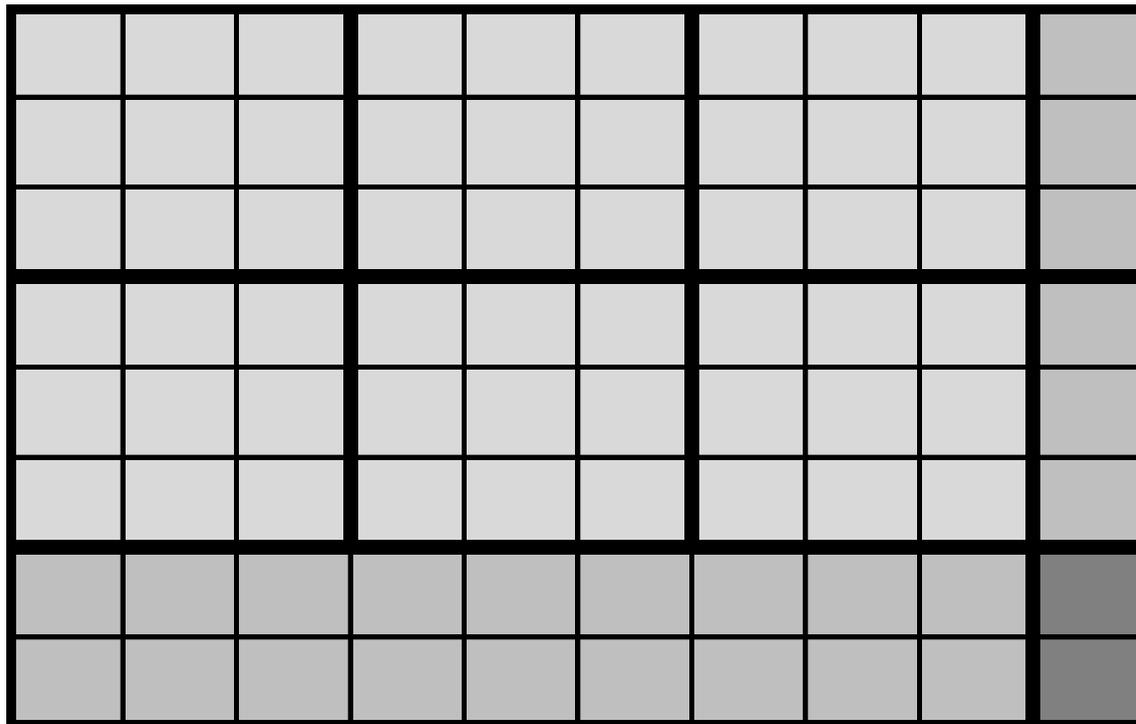


Array three - one whole equals a 4 x 4 square.
Use fraction pieces $\frac{1}{2}$ and $\frac{1}{4}$. Use $\frac{1}{8}$ as a challenge.



Array four - one whole equals a 3 x 3 square.

Use fraction pieces $\frac{1}{3}$, $\frac{2}{3}$, and $\frac{1}{9}$. Use $\frac{1}{6}$ for a challenge.



$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$
$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{3}$	$\frac{1}{3}$
$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{3}$	$\frac{2}{3}$	$\frac{2}{3}$
$\frac{1}{6}$	$\frac{1}{9}$	$\frac{1}{6}$	$\frac{1}{9}$	$\frac{1}{2}$
$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{5}$	$\frac{1}{10}$	$\frac{1}{10}$