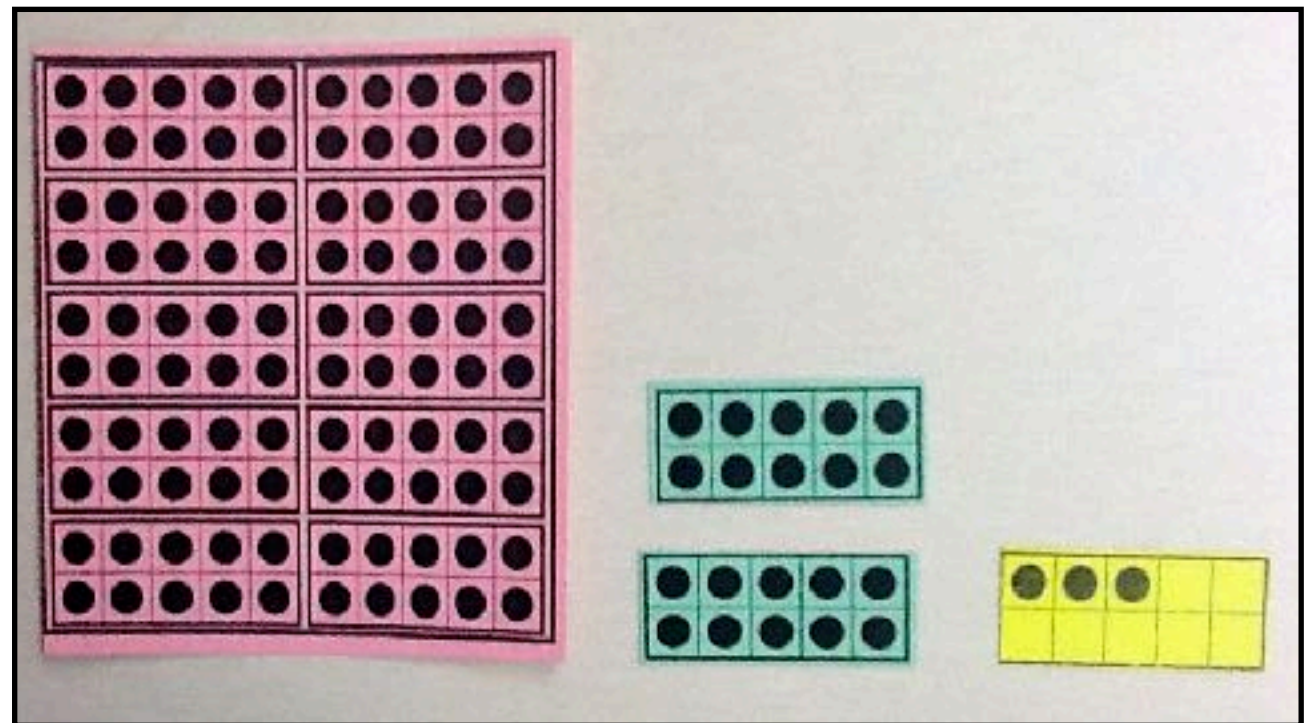
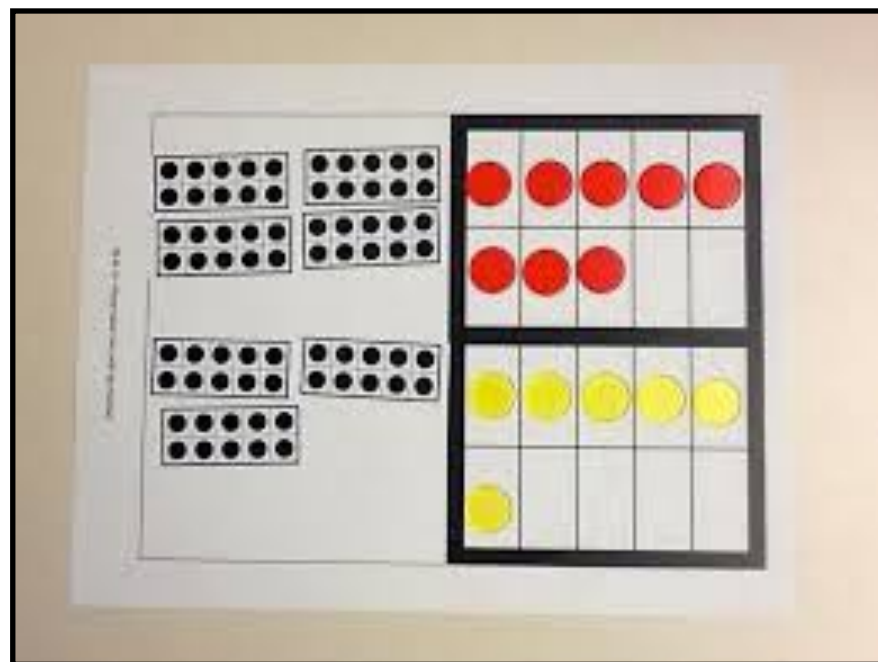


STA DAY: Using Ten Frames to Teach Addition and Subtraction Grades One through Four



May 3rd, 2019

Jen Barker - Surrey Numeracy Helping Teacher

Website: meaningfulmathmoments.com



@barkerjBarker

Acknowledgement

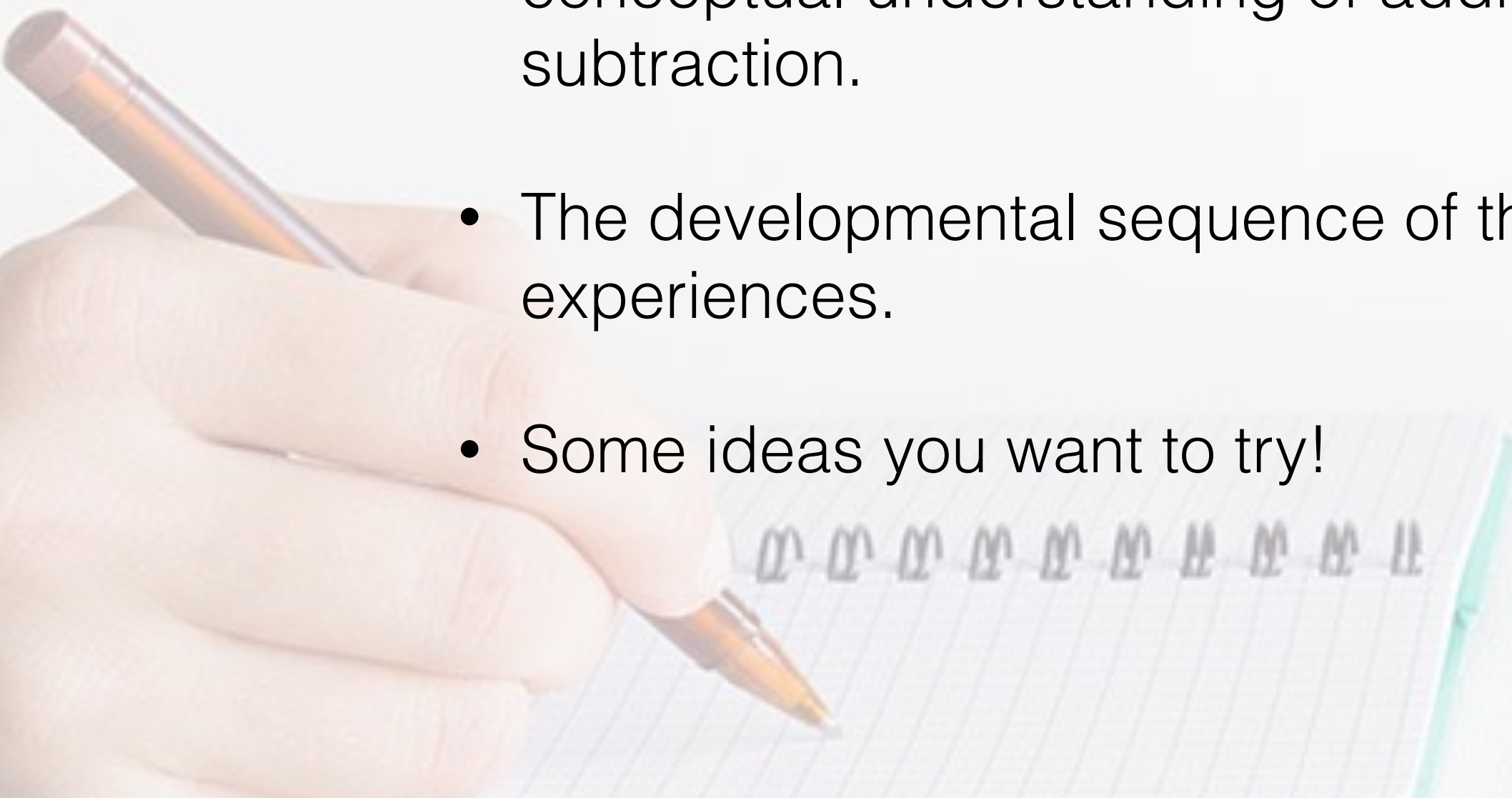


Before going any further, it is important that we recognize that we are here today on the unceded, shared territories of the Coast Salish people on which our schools are located. We are so grateful and honoured to be able to live, learn, and create on these beautiful lands.

Learning Intentions

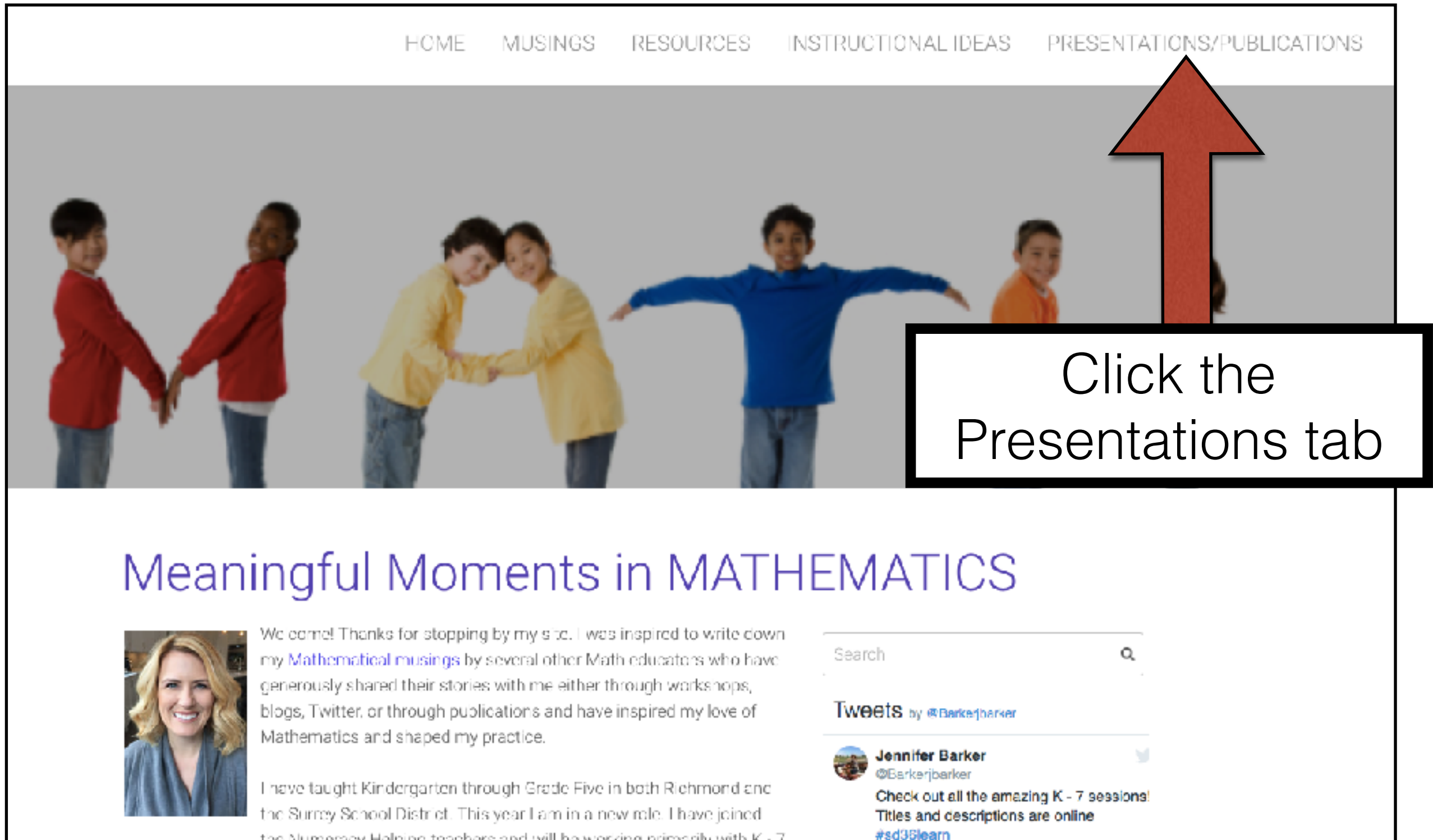
By the end of the session, I hope you will leave with:

- Knowledge and understanding of why you might want to use ten frames to develop a conceptual understanding of addition and subtraction.
- The developmental sequence of the learning experiences.
- Some ideas you want to try!



Where can you find this PPT?


www.meaningfulmathmoments.com



HOME MUSINGS RESOURCES INSTRUCTIONAL IDEAS PRESENTATIONS/PUBLICATIONS

Click the Presentations tab


Meaningful Moments in MATHEMATICS

 We came! Thanks for stopping by my site. I was inspired to write down my [Mathematical musings](#) by several other Math educators who have generously shared their stories with me either through workshops, blogs, Twitter, or through publications and have inspired my love of Mathematics and shaped my practice.

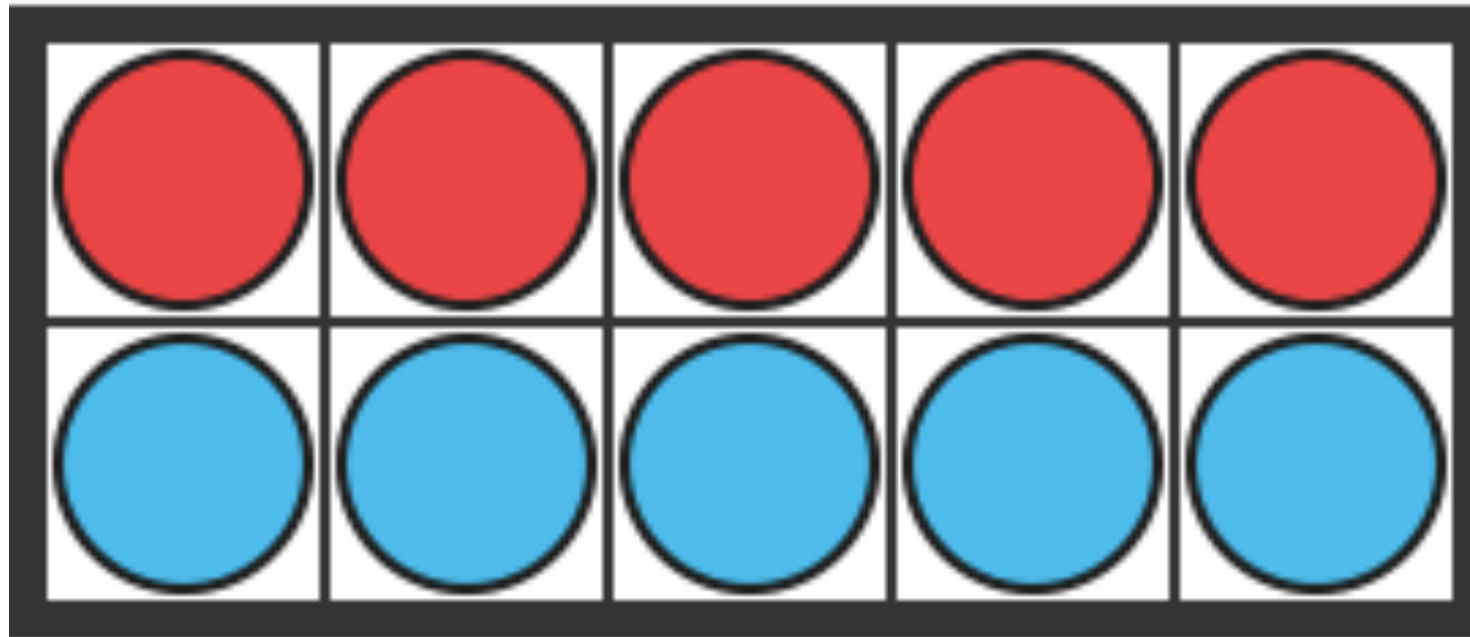
I have taught Kindergarten through Grade Five in both Richmond and the Surrey School District. This year I am in a new role. I have joined the Numeracy Helping teachers and will be working primarily with K - 7

Search

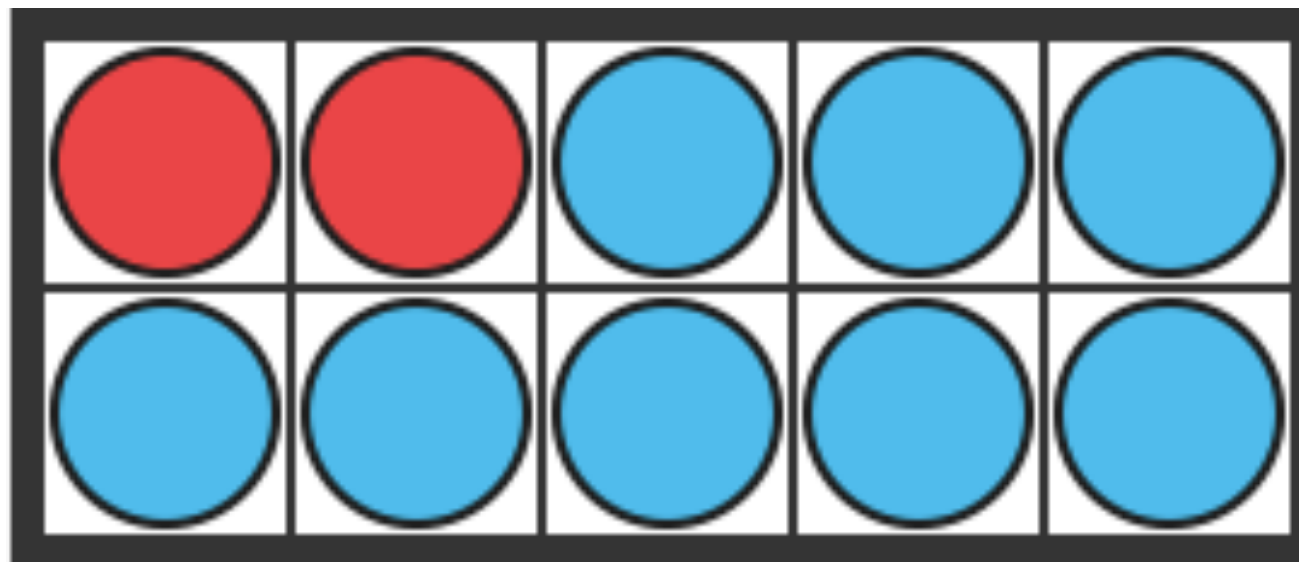
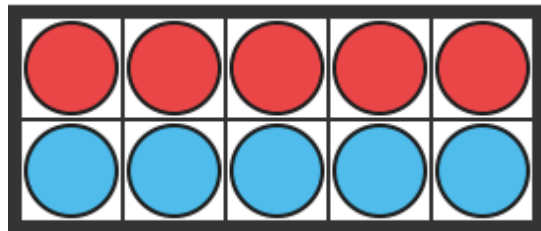
Tweets by @Barkerjbarker

 **Jennifer Barker**
@Barkerjbarker
Check out all the amazing K - 7 sessions!
Titles and descriptions are online
[#sd35learn](#)

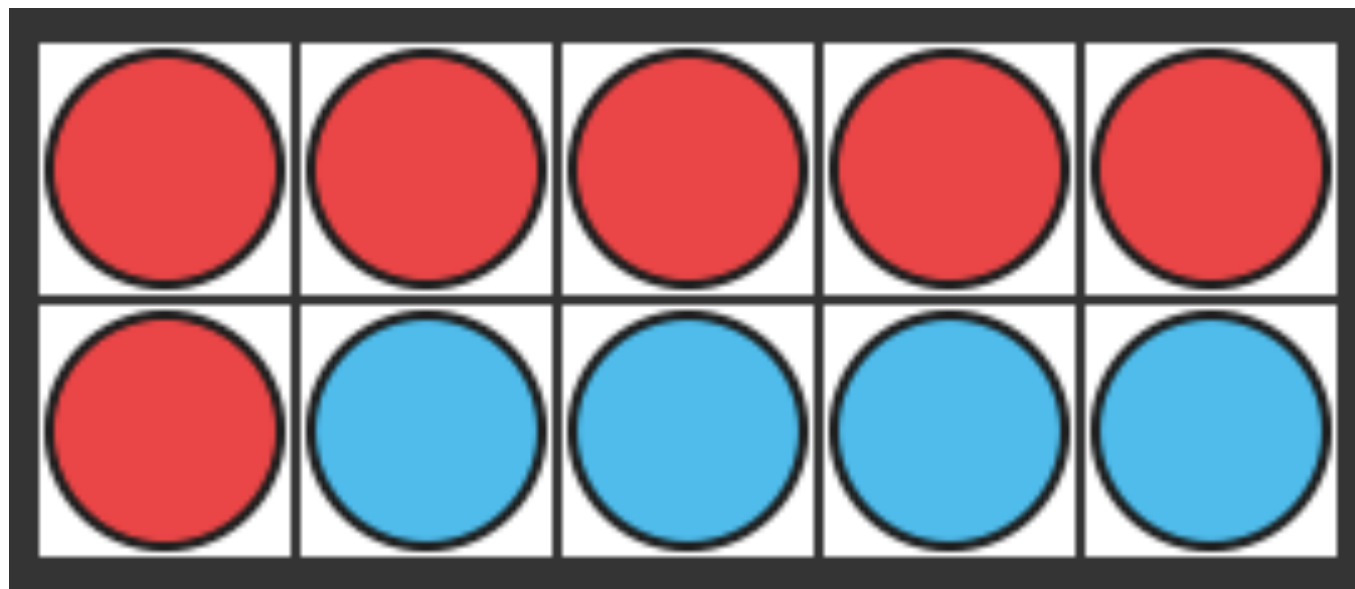
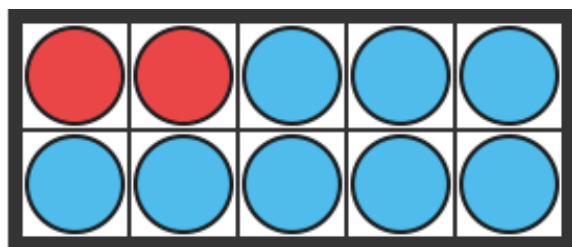
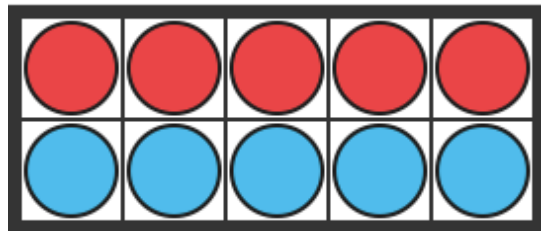
Why Use Ten Frames?



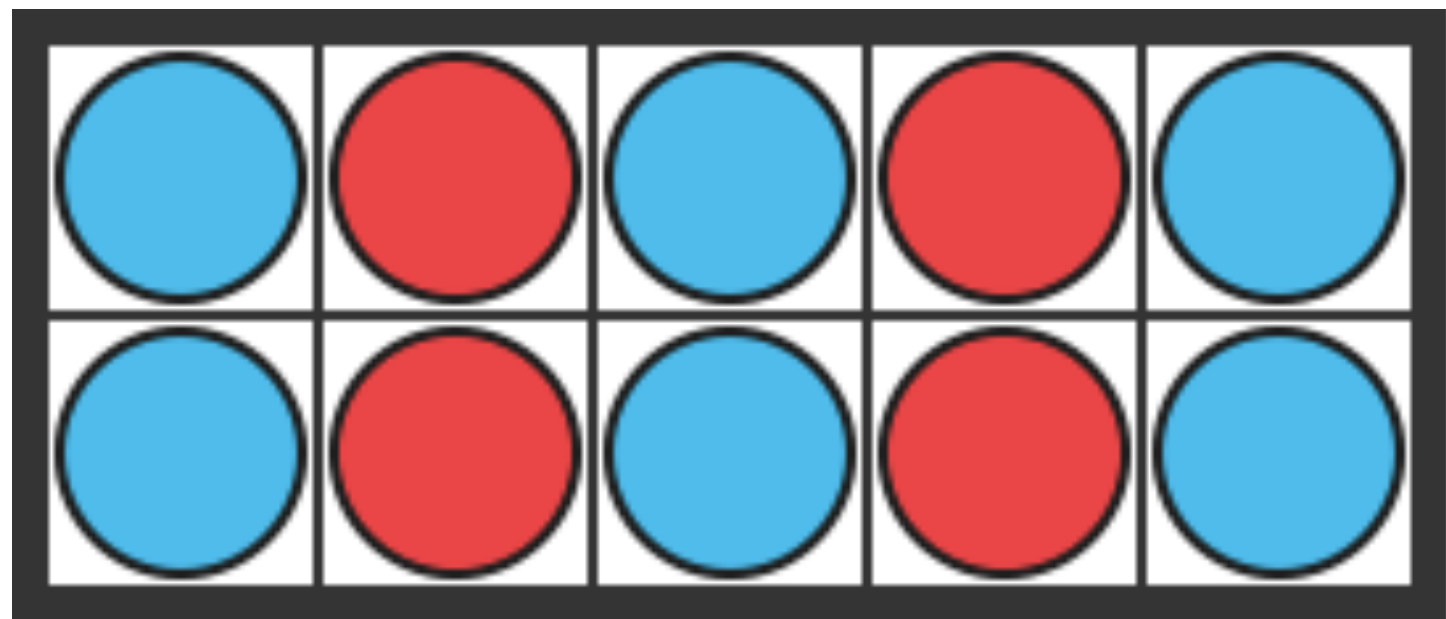
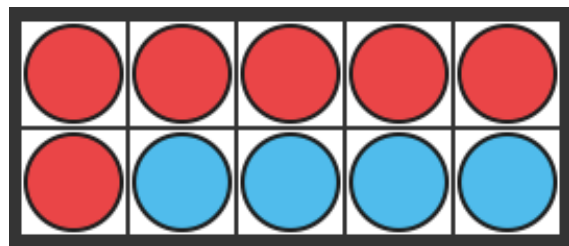
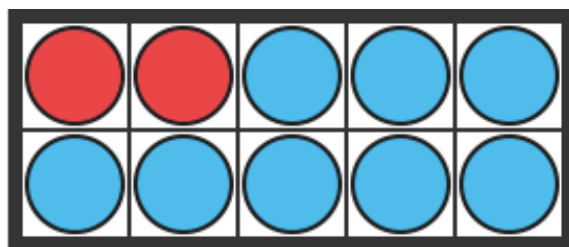
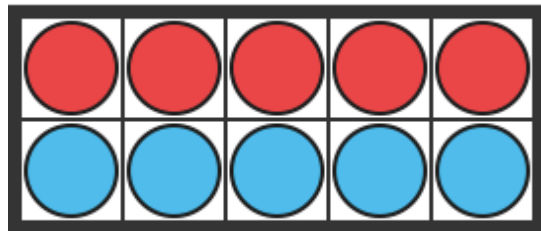
Why Use Ten Frames?



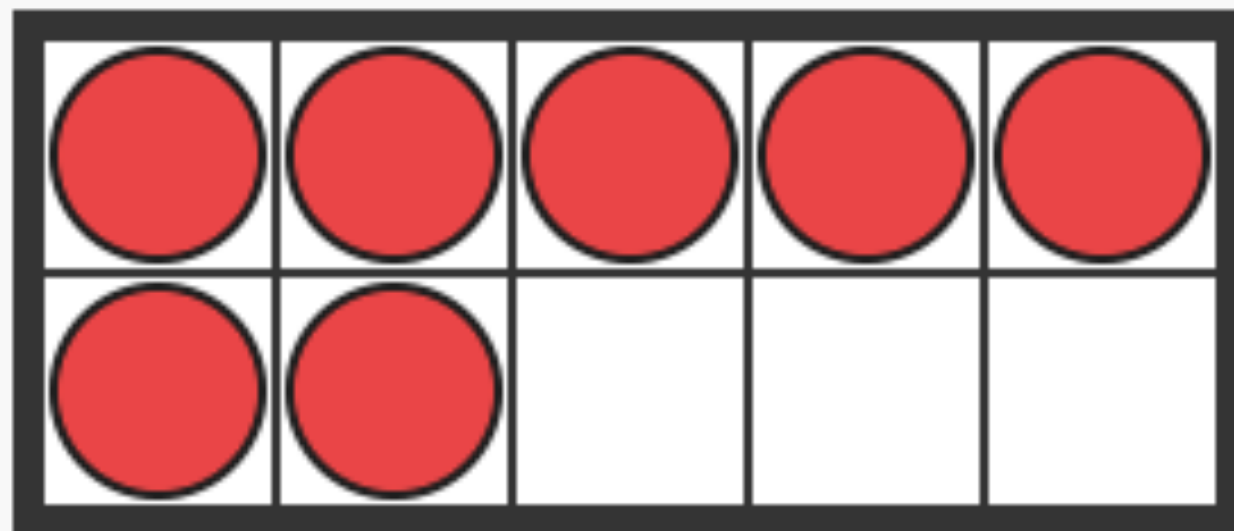
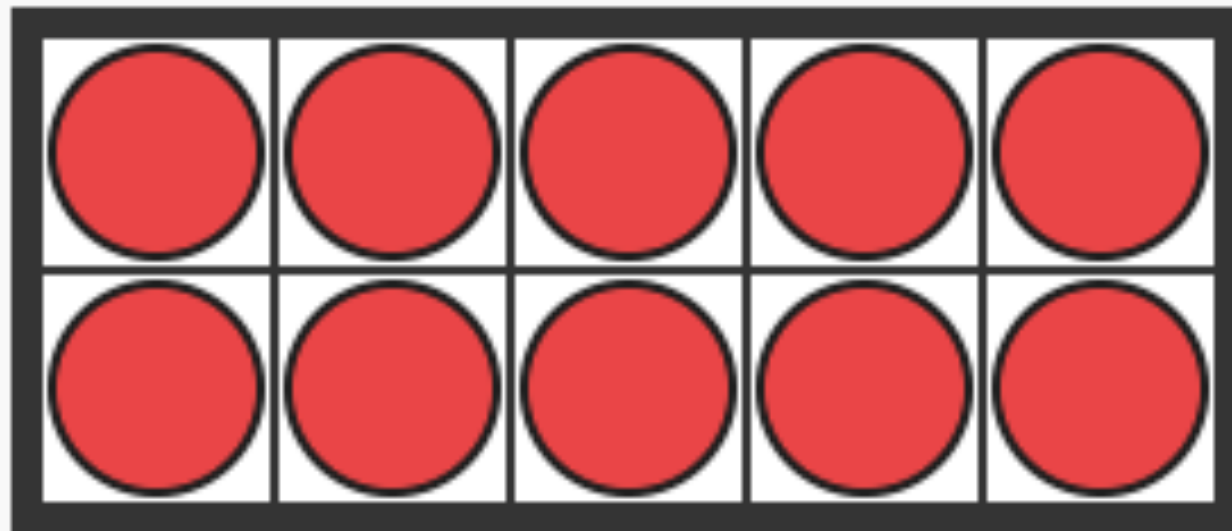
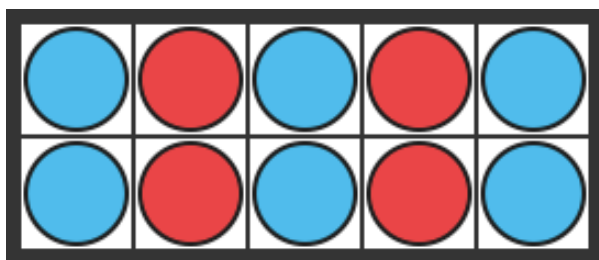
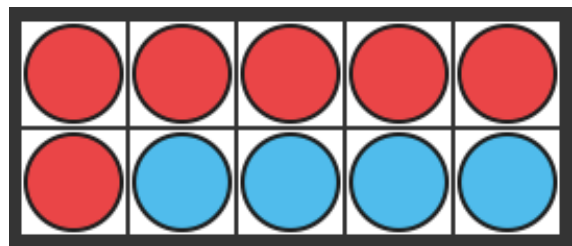
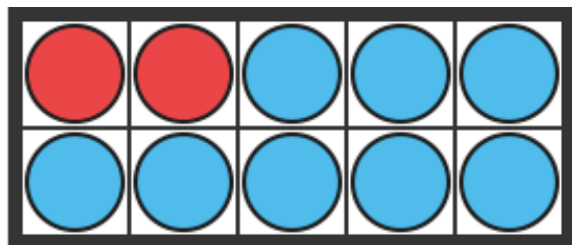
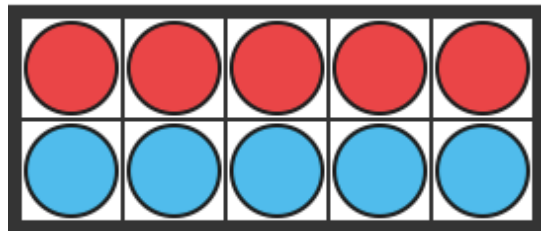
Why Use Ten Frames?



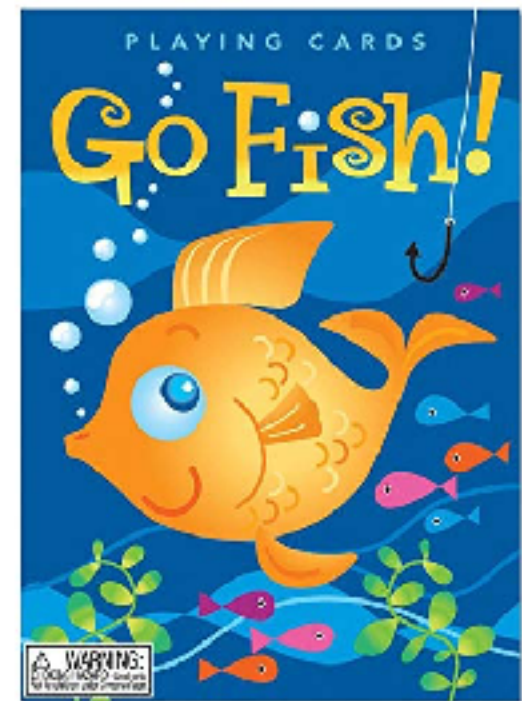
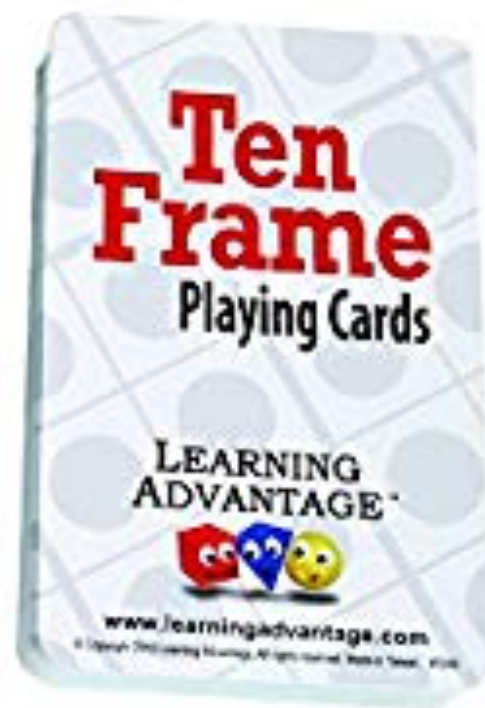
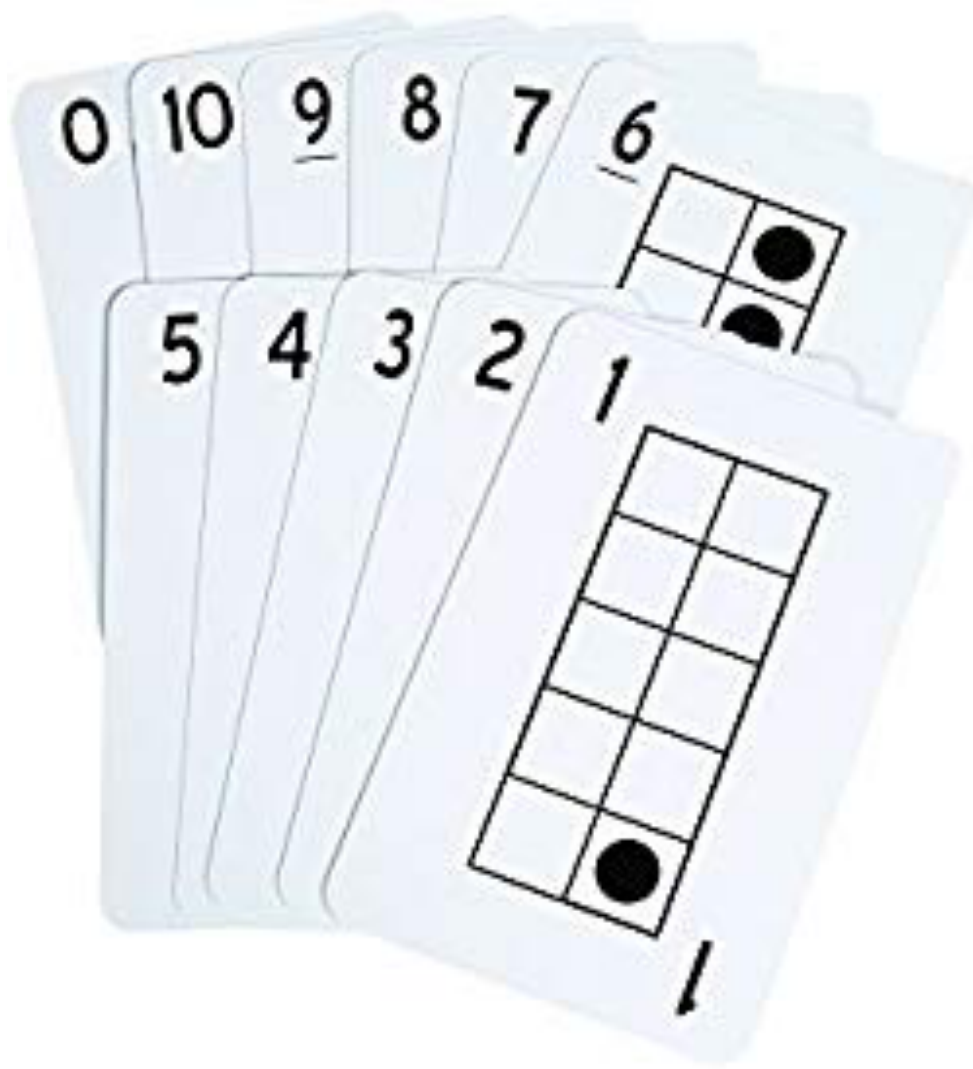
Why Use Ten Frames?



Why Use Ten Frames?



Students must become
FAMILIAR with ten frames

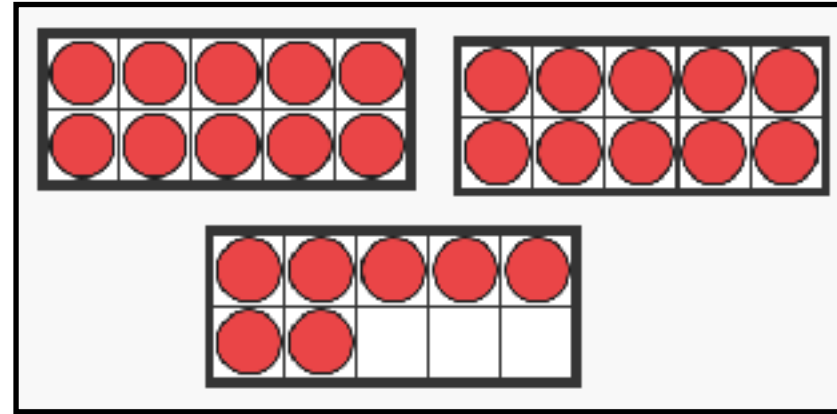


SNAP

**CONCENTRATION/
MEMORY**

Using Quick Images

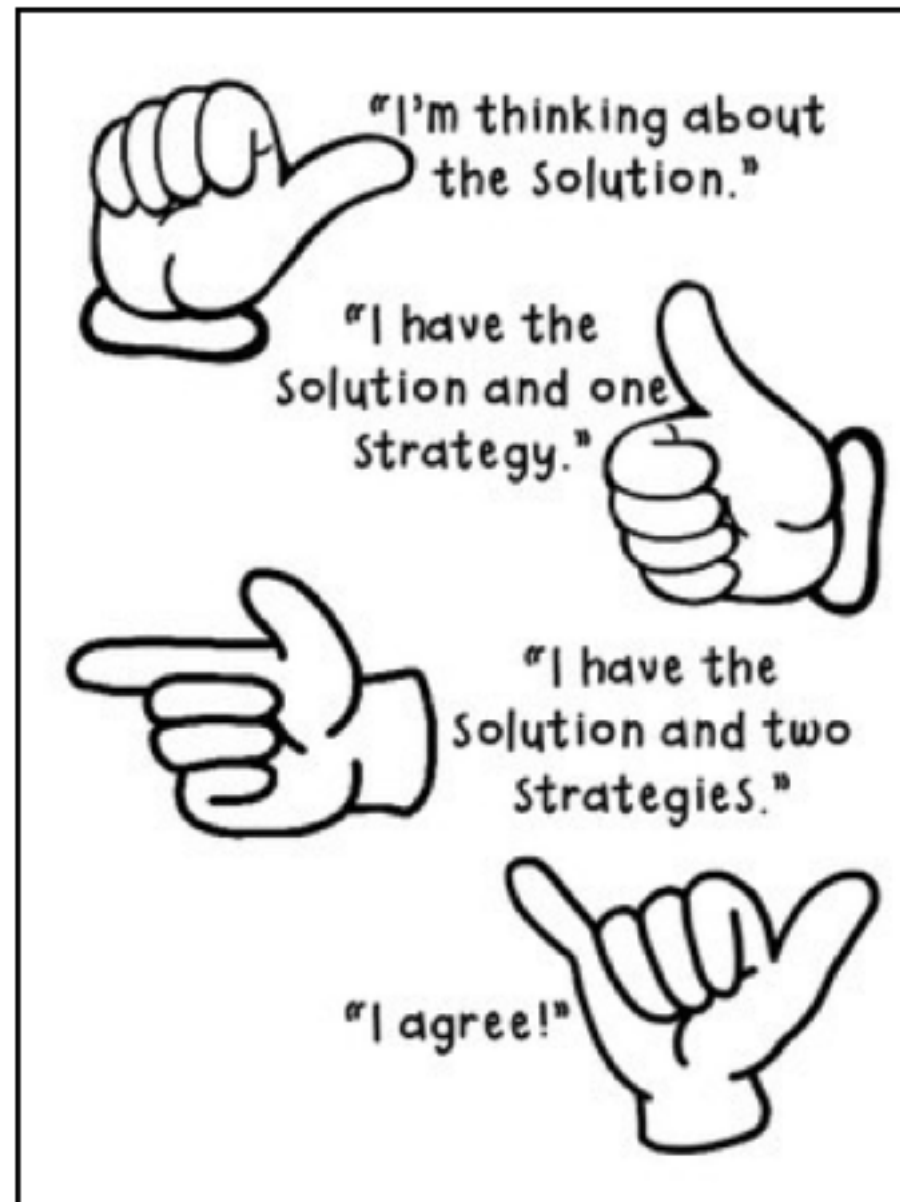
Flash and Say
Flash and Show
Flash and Build



It is important because students need to develop:

- ability to move beyond counting to see spatial patterns
- seeing groups/sets of #'s
- a strong sense of both five and ten and the relationship between these quantities (similar to 50 and 100 and 500 and 1000)
- develop part-part whole understanding
- place value understanding

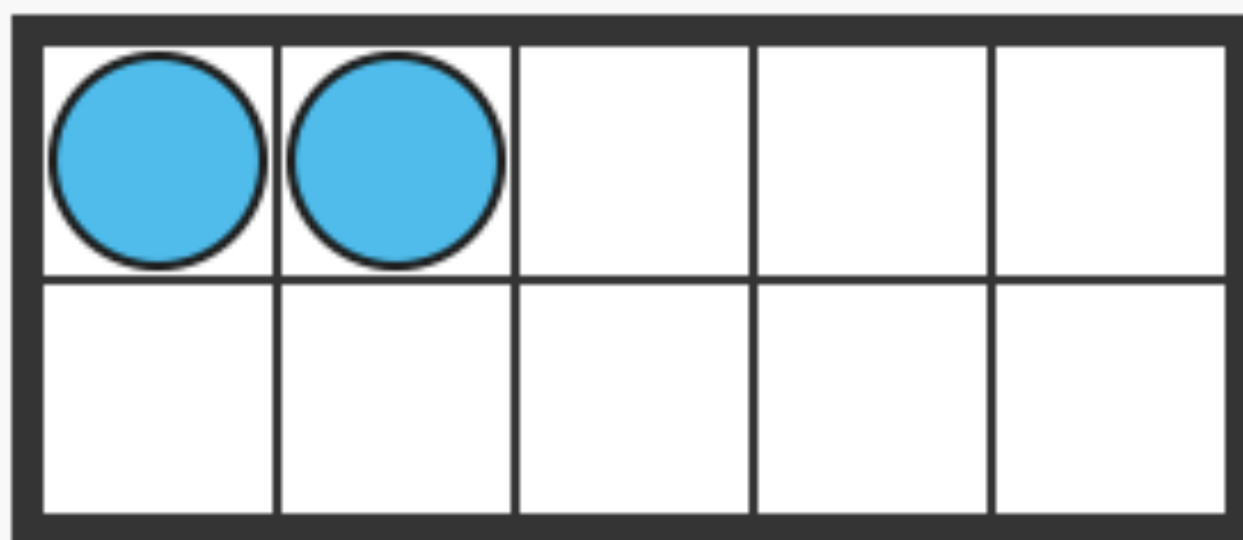
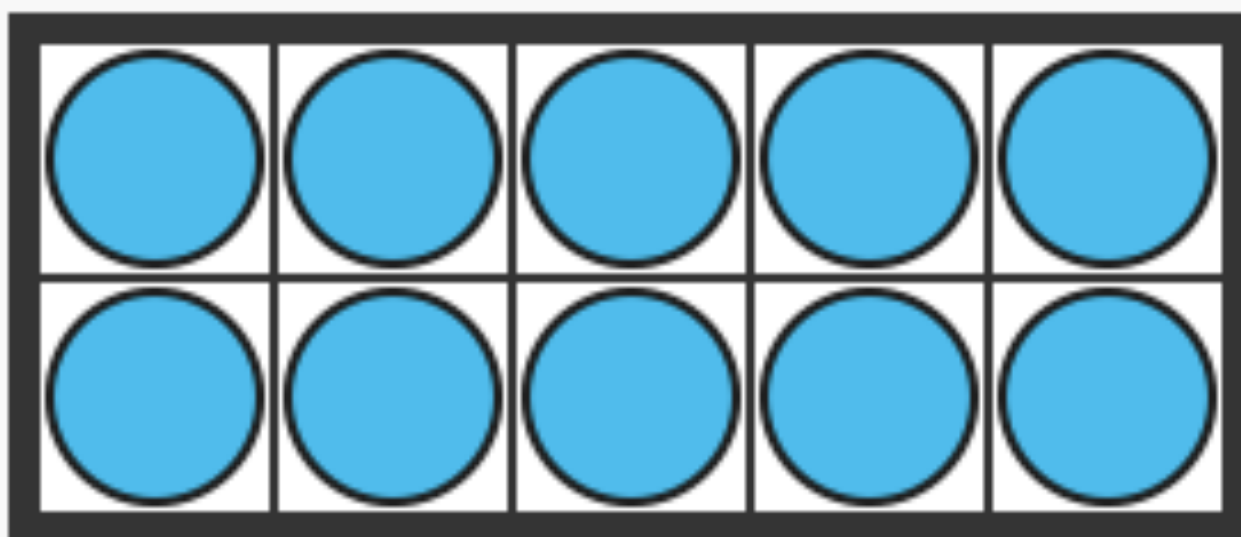
Thinking Thumbs



How many dots do you see?

How do you see them?

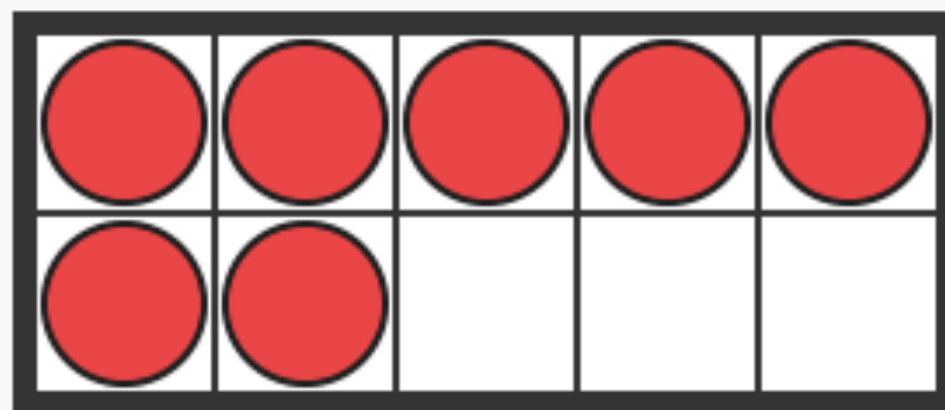
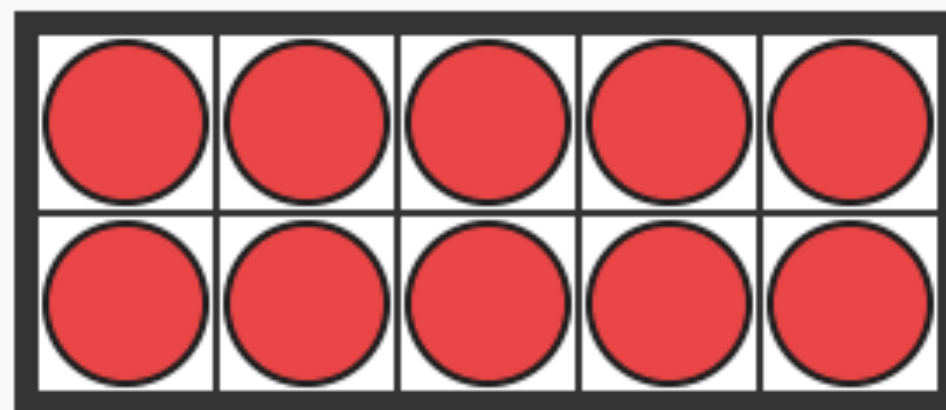
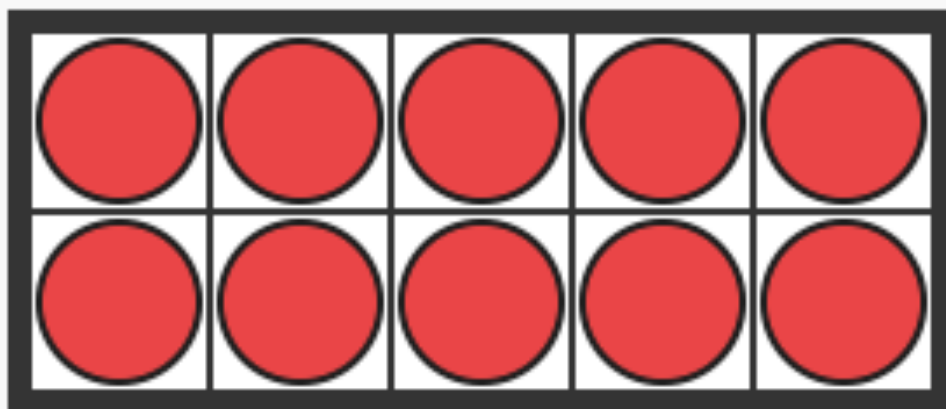
Is there a number sentence/ equation
that we could write that would match
how _____ determined how many
dots there were?



How many dots do you see?

How do you see them?

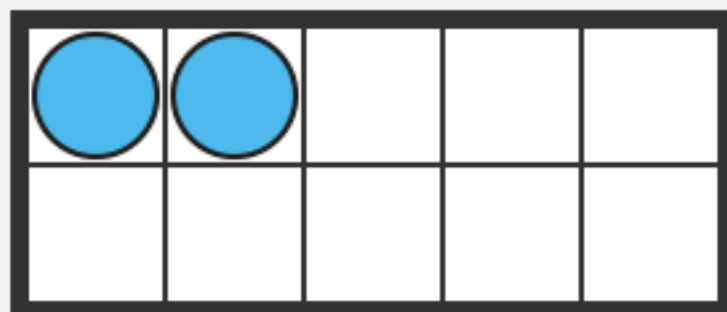
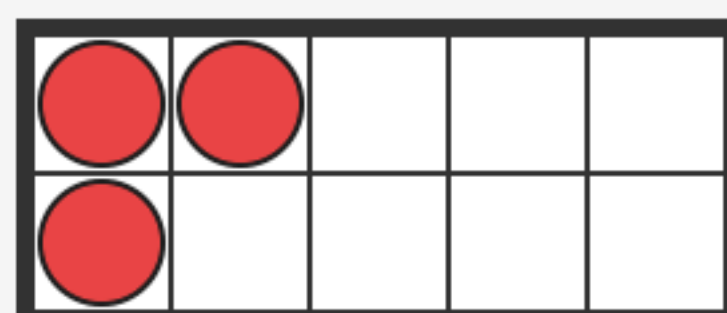
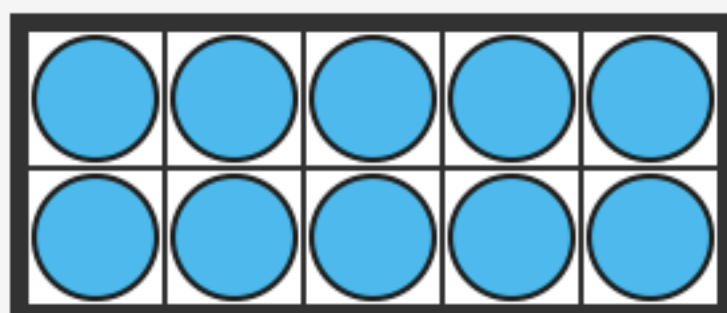
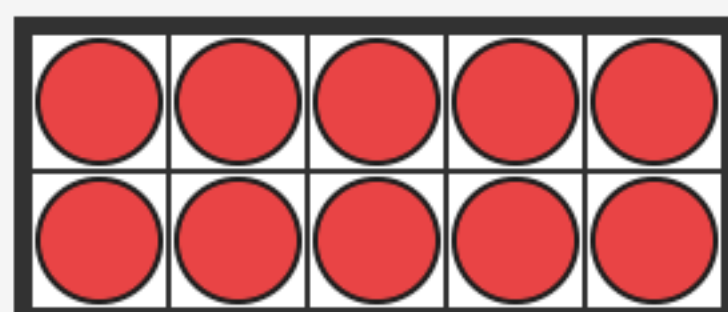
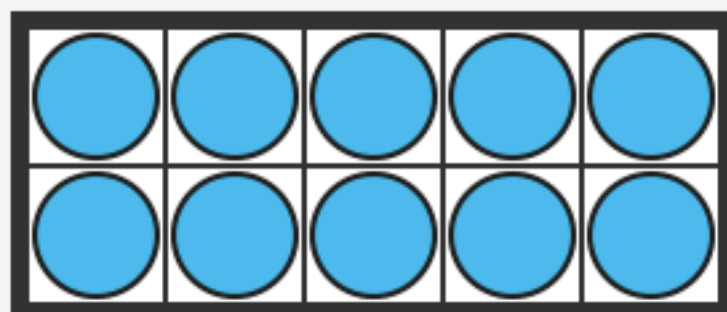
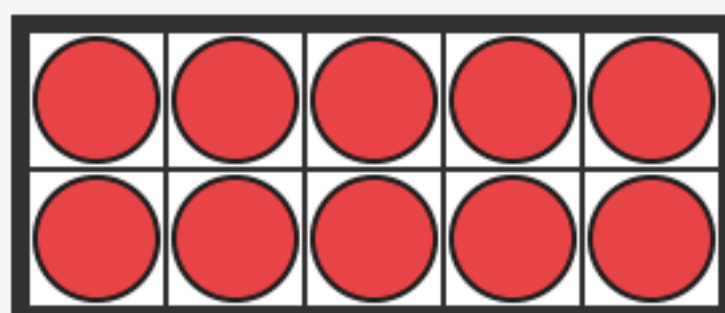
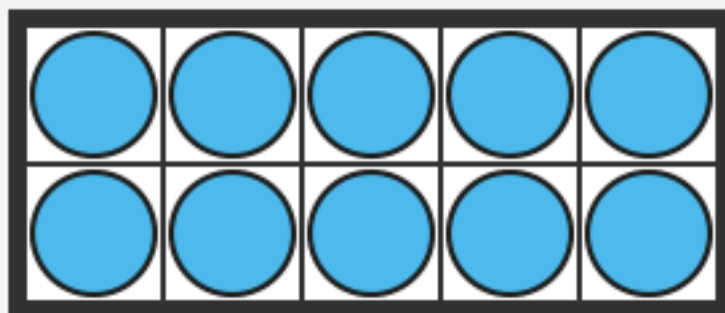
Is there a number sentence/ equation
that we could write that would match
how _____ determined how many
dots there were?



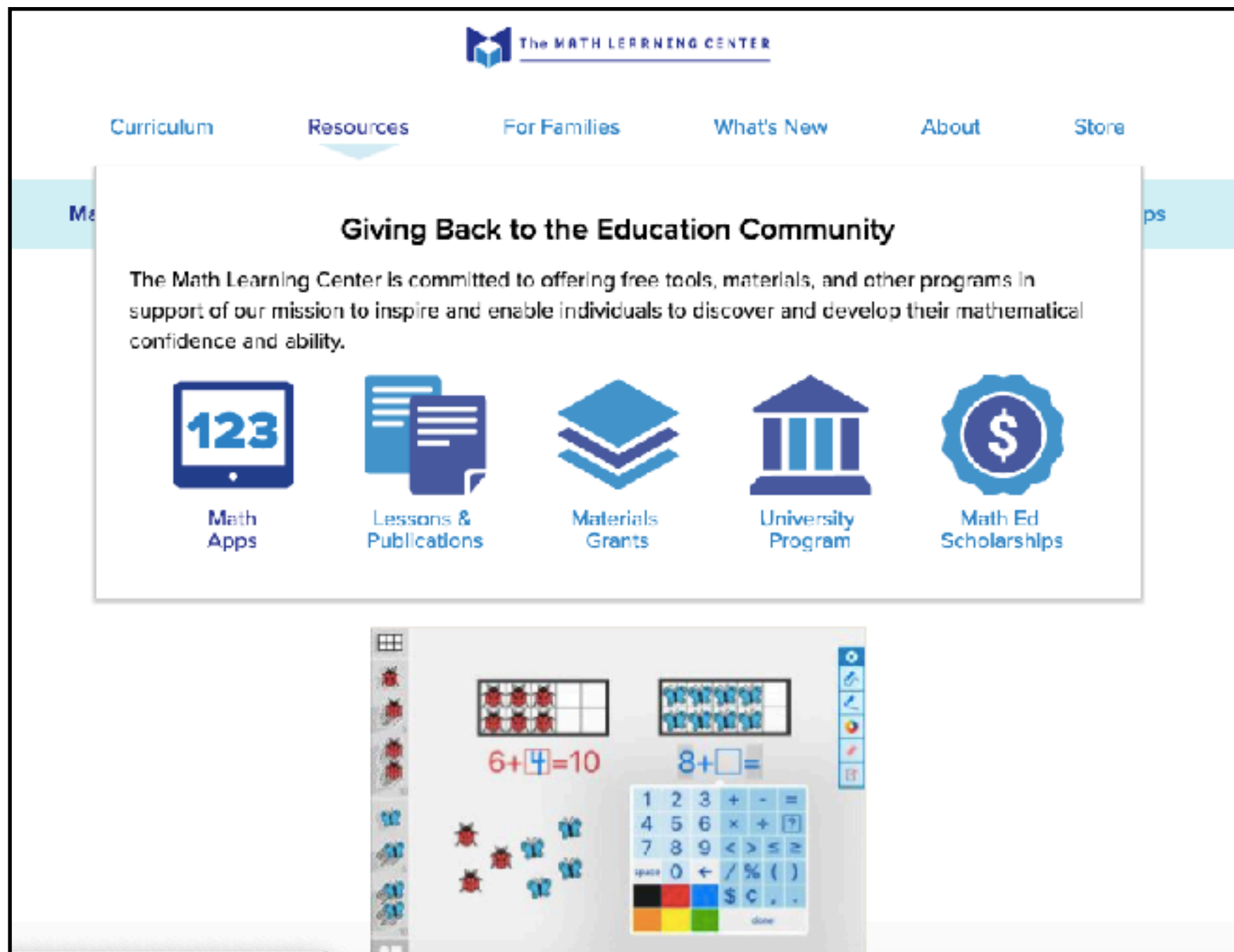
How many dots do you see?

How do you see them?

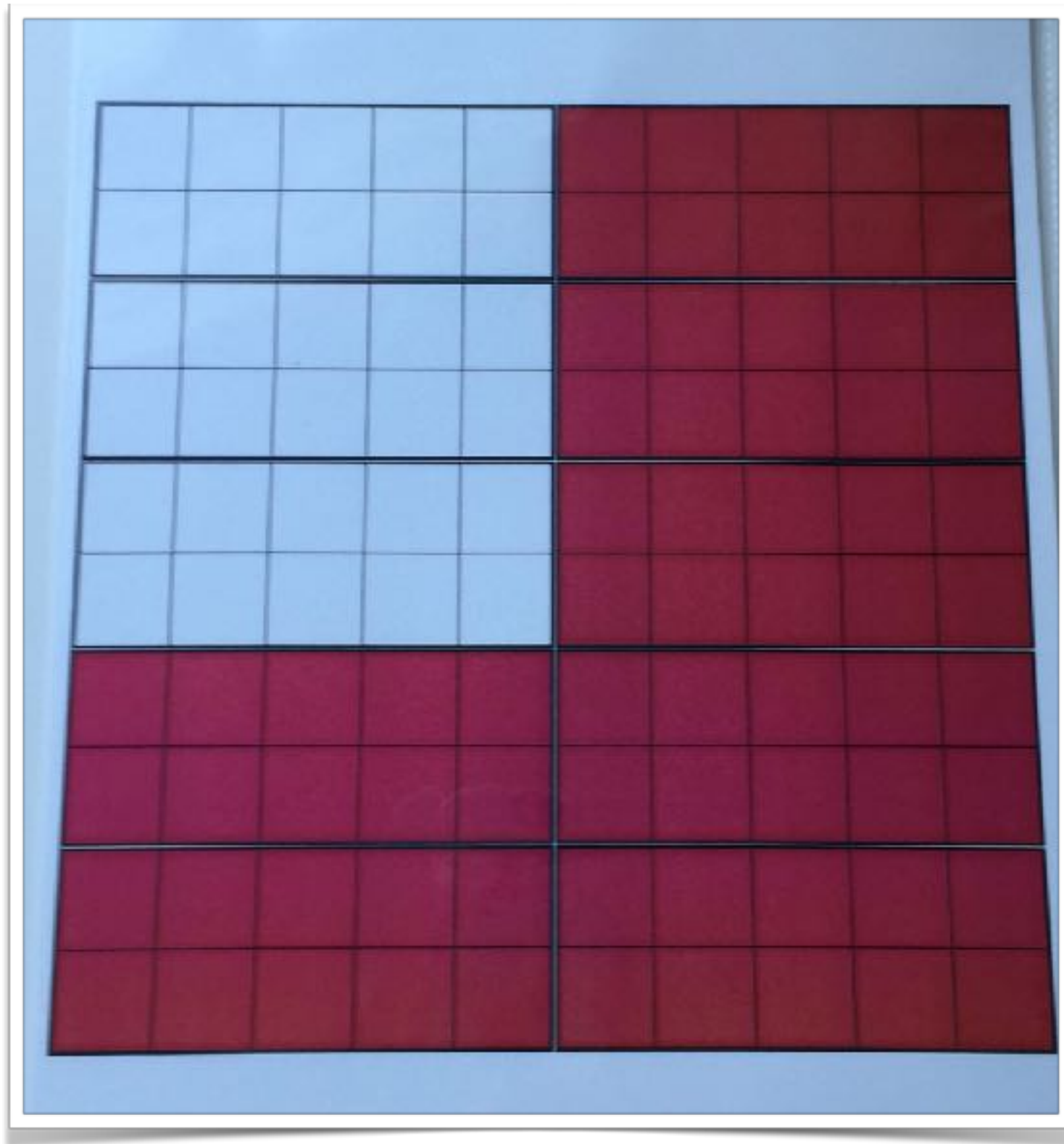
Is there a number sentence/ equation
that we could write that would match
how _____ determined how many
dots there were?



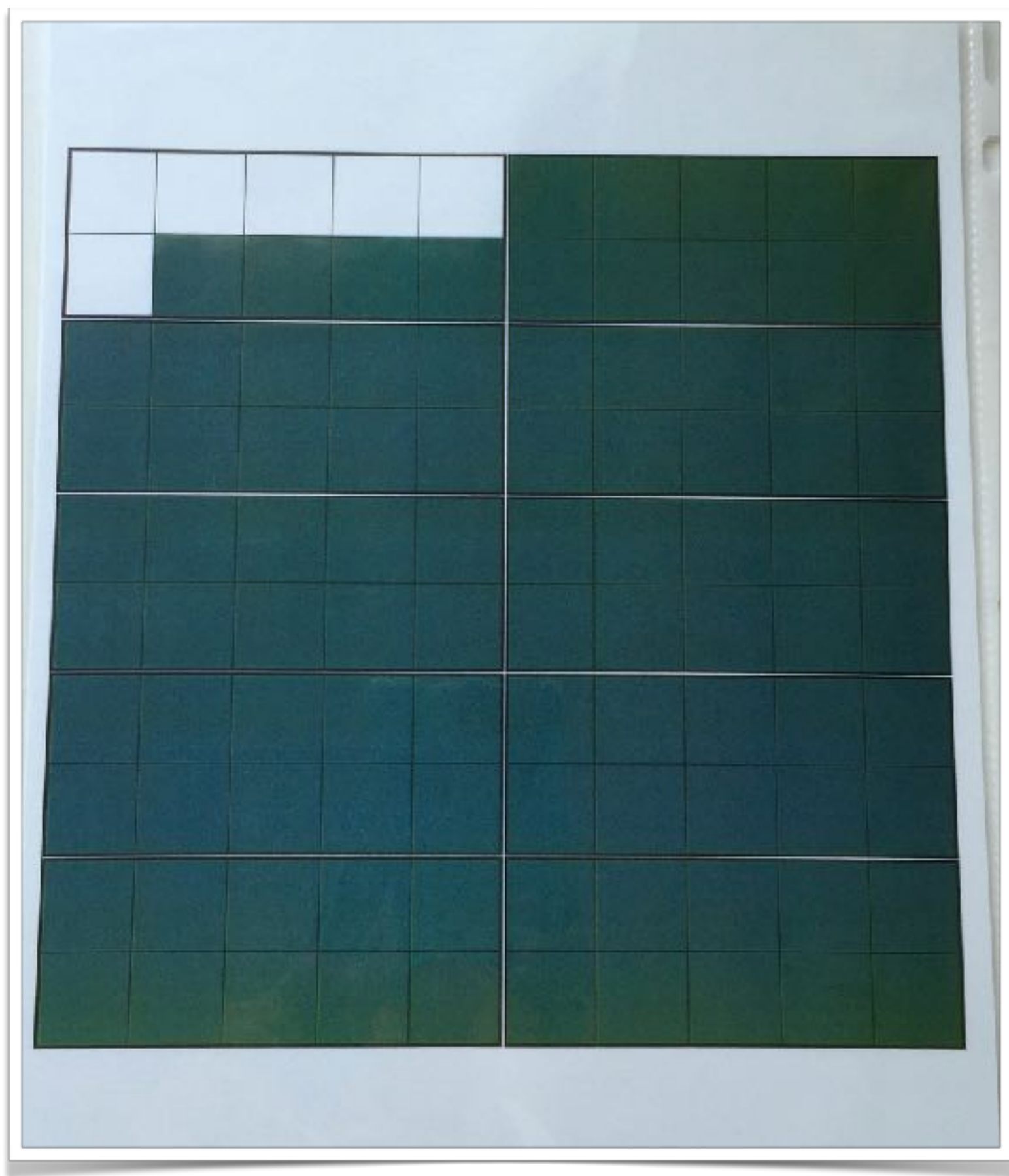
Let's check out a FREE digital app where
you can create images!
www.mathlearningcenter.org



Hundreds Boards



[illegible]



Representing Quantities

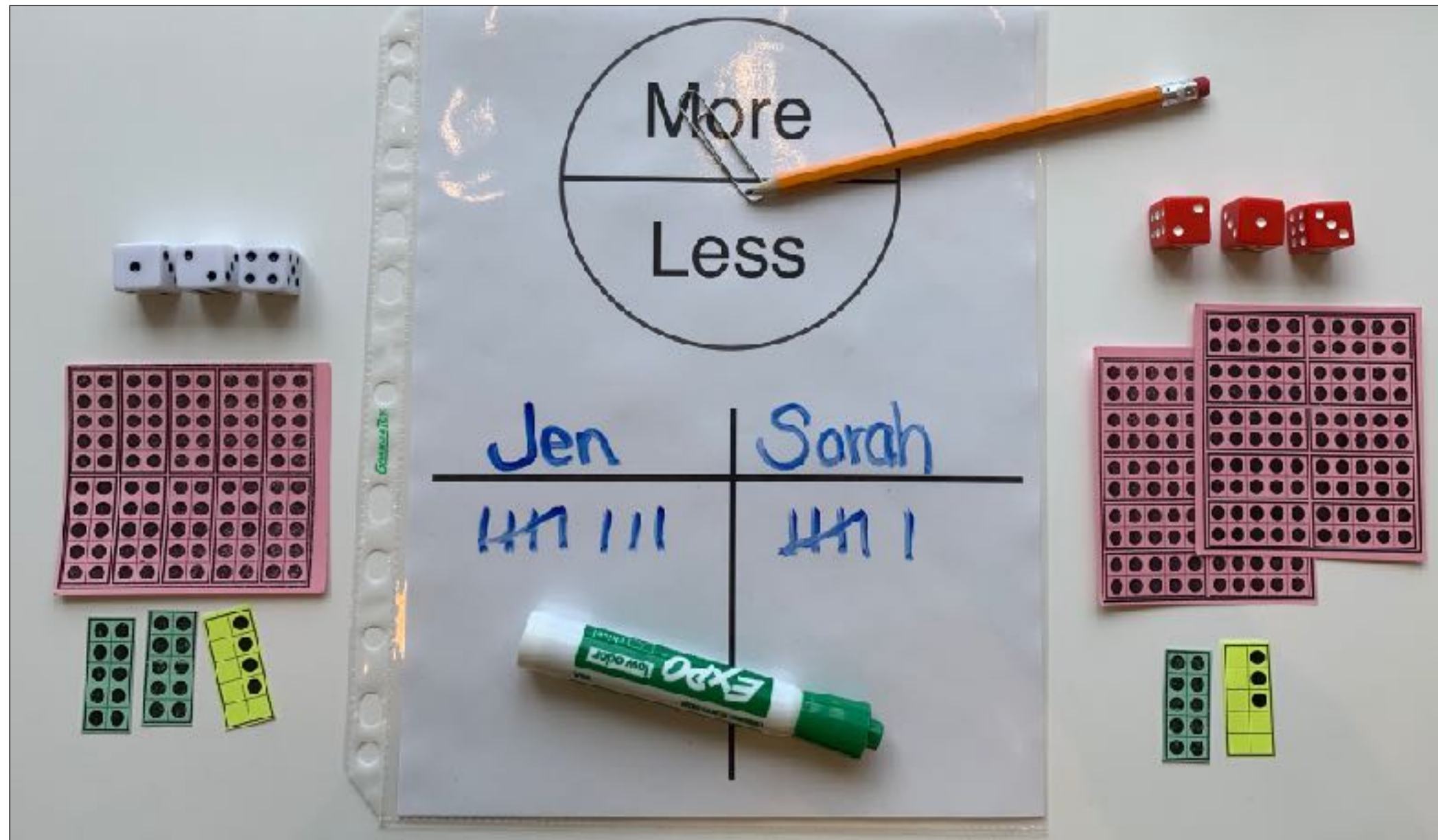


Visually Representing Quantities

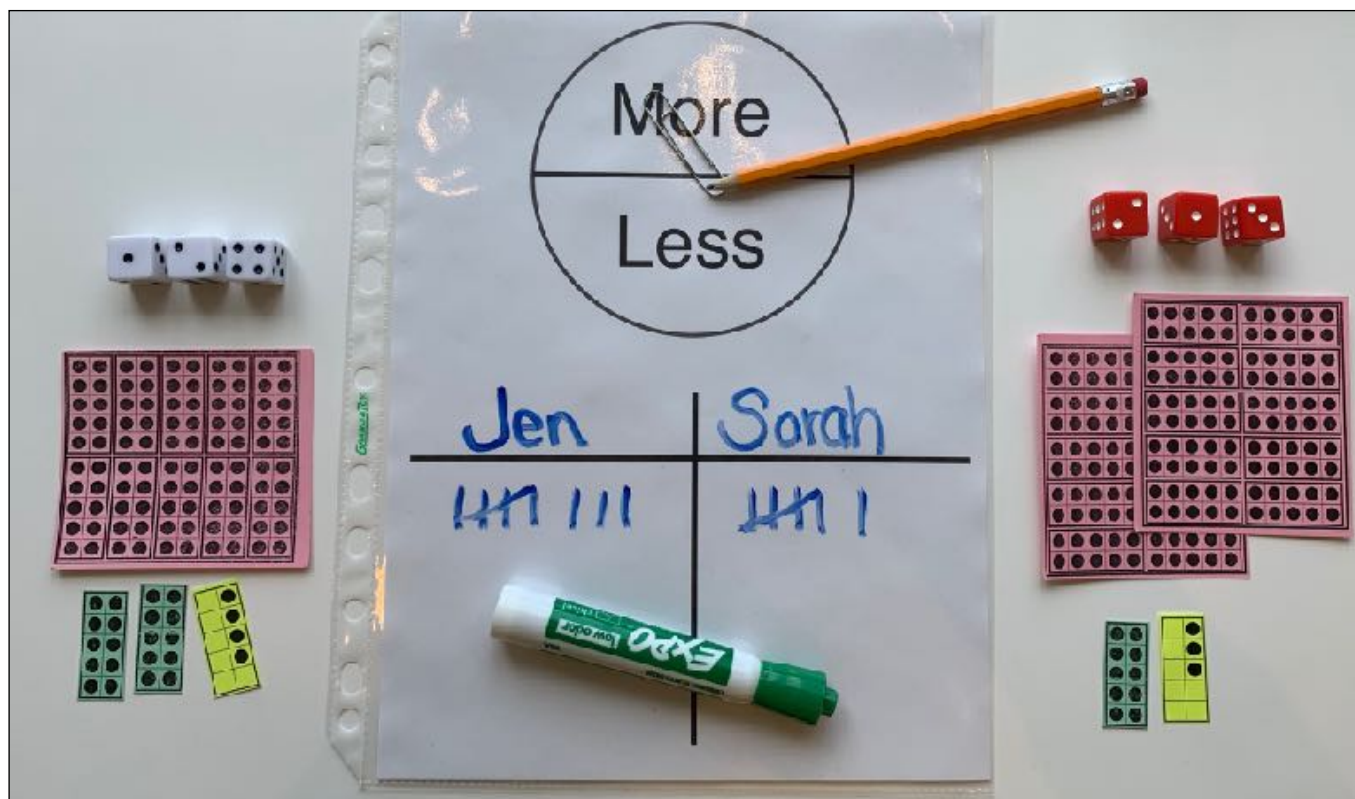


The image shows the front cover of a book. The cover has a marbled pattern in shades of brown, tan, and green. A vertical strip of blue material, likely the spine, is visible on the left side. Two white labels are affixed to the cover. The label on the left is a 5x2 grid with a black dot in the top-right cell. The label on the right is a 5x2 grid with black dots in the top-left cells of all five rows.

More OR Less



More OR Less



Shrink OR Grow

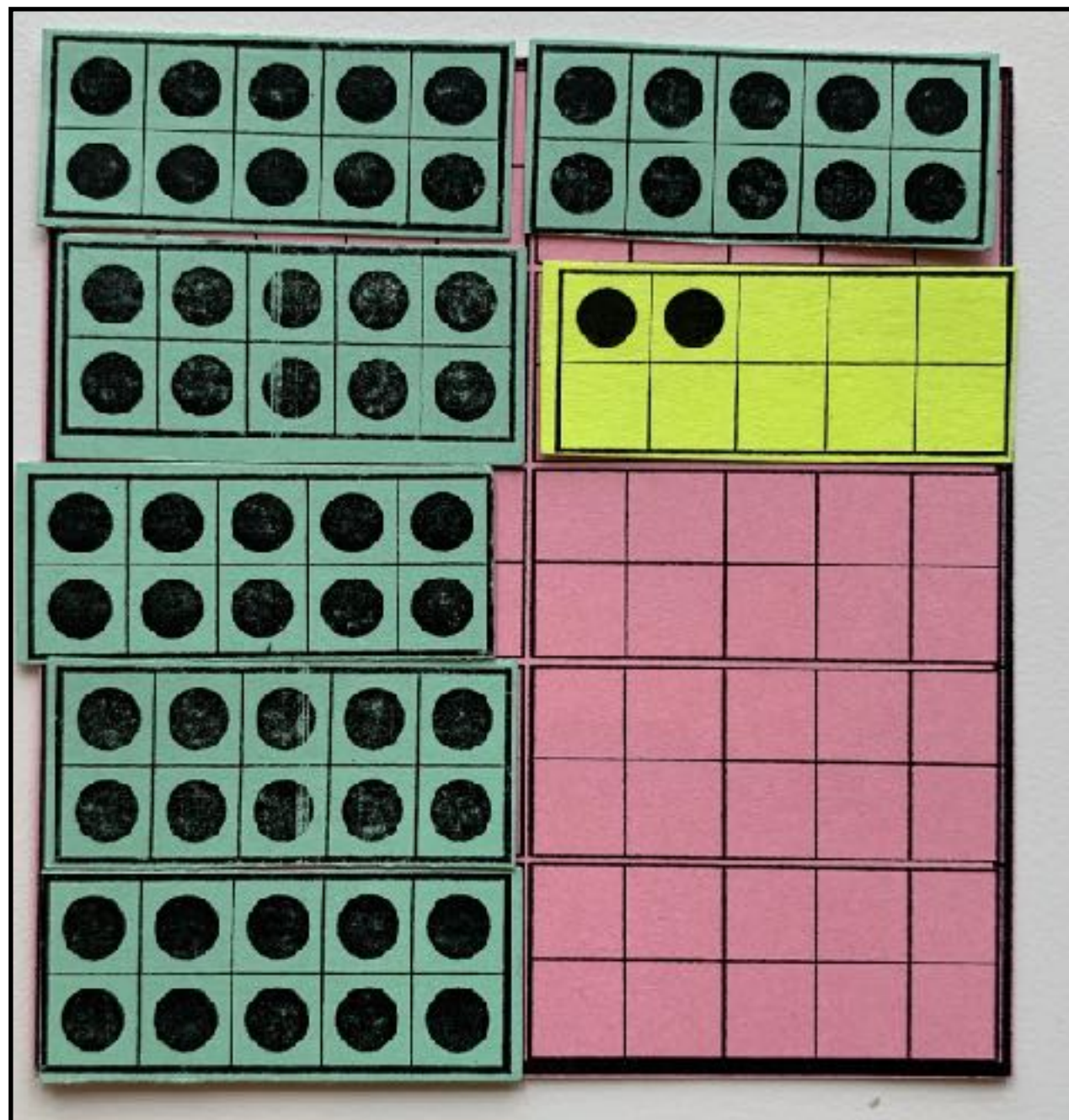


Please build 919



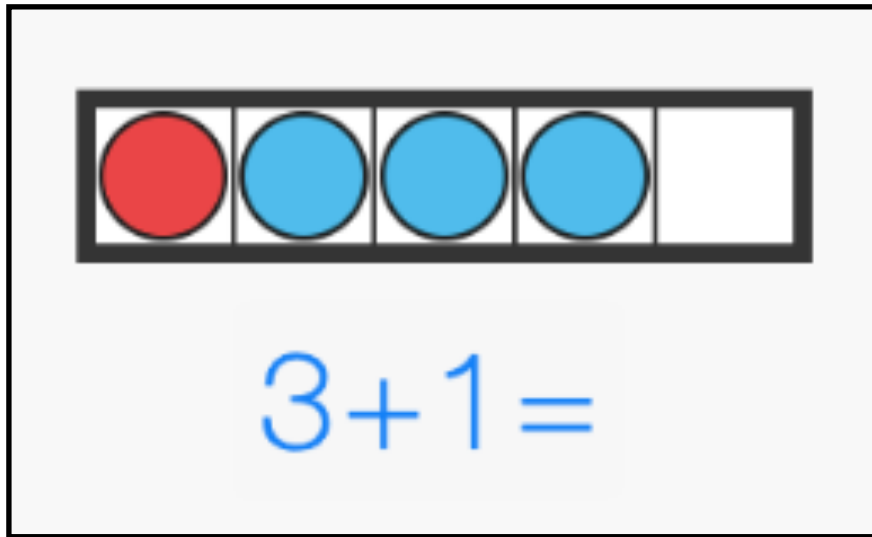
Are we shrinking or growing?
Can you make 742?

How Much More to Make 5, 10, 50 or 100 or 1000

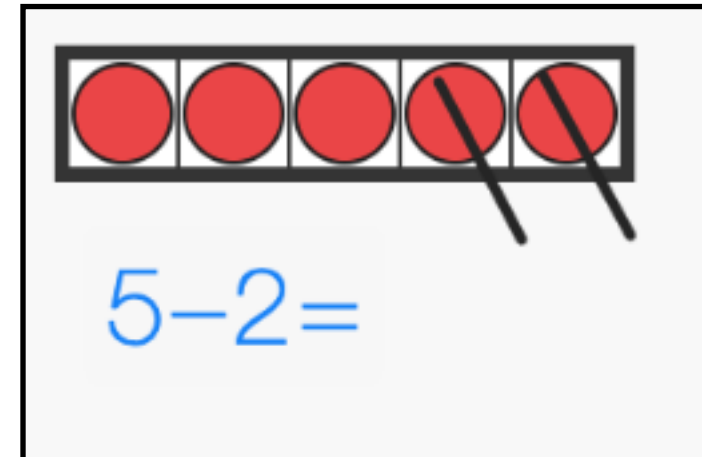
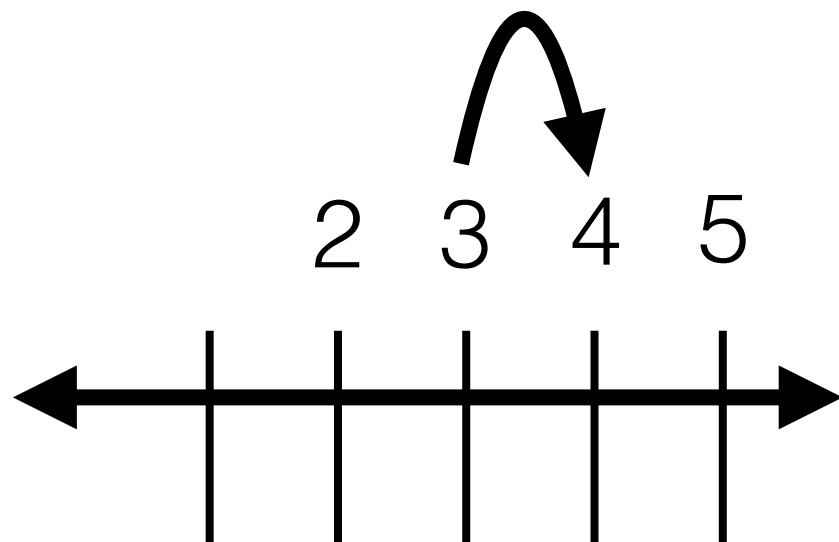


Let's
play!

Adding Subtracting within 5

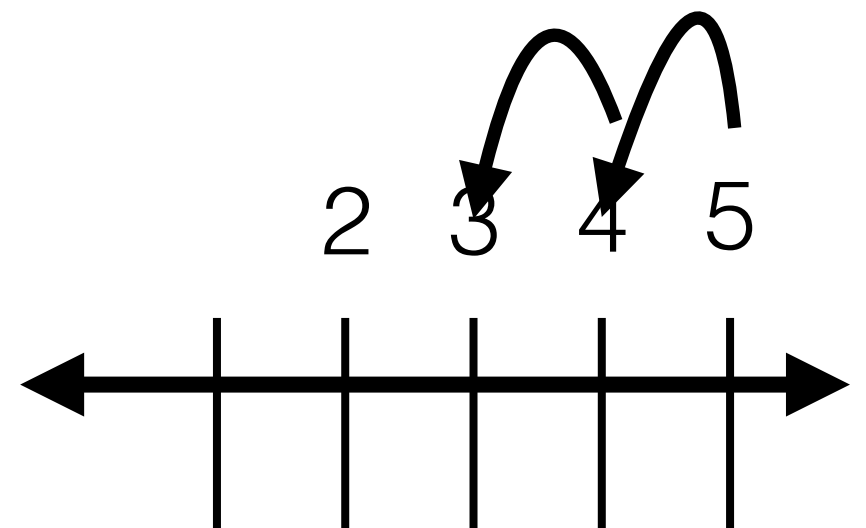


I see 3 and I know
one more is 4.

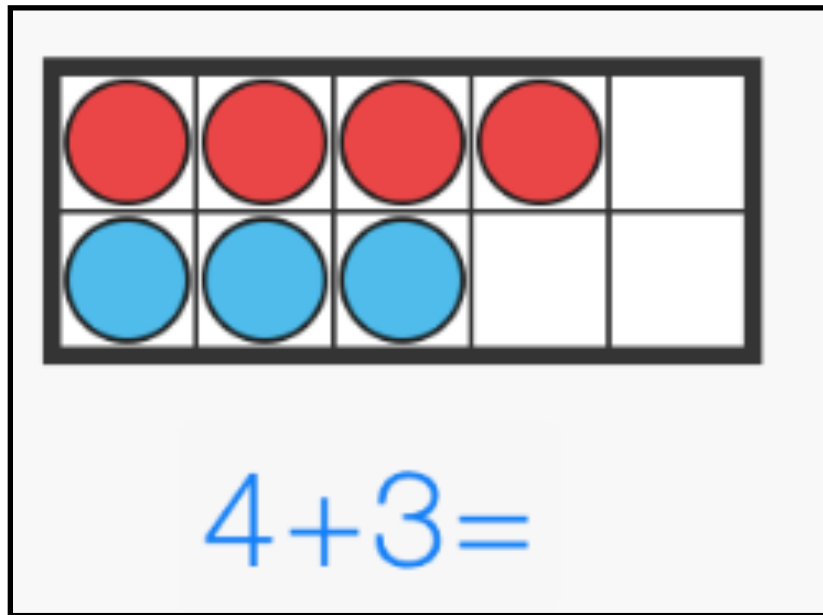


I see 3 are left.

Or I counted back



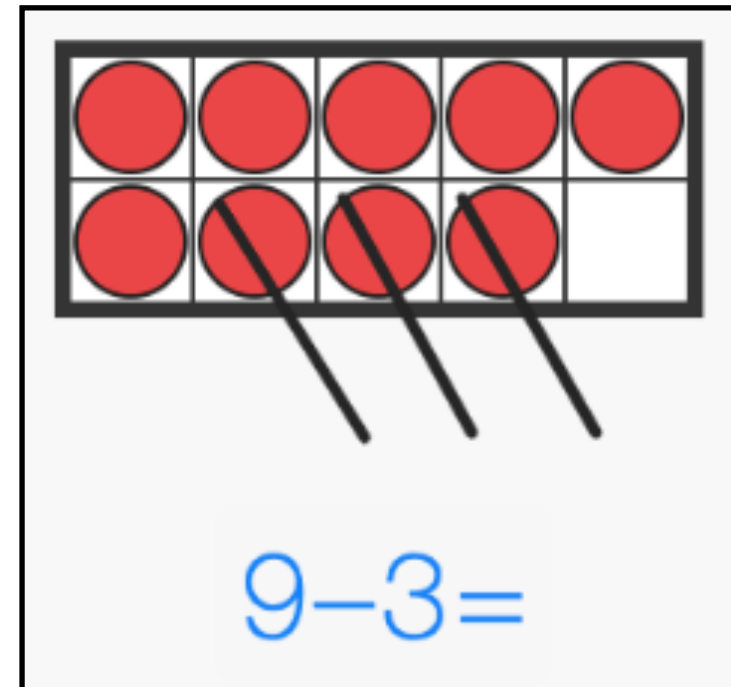
Adding and Subtracting within 10



I can count on from 4

I know $4 + 4$ is 8 and
one less is 7

10 less 3 is 7.



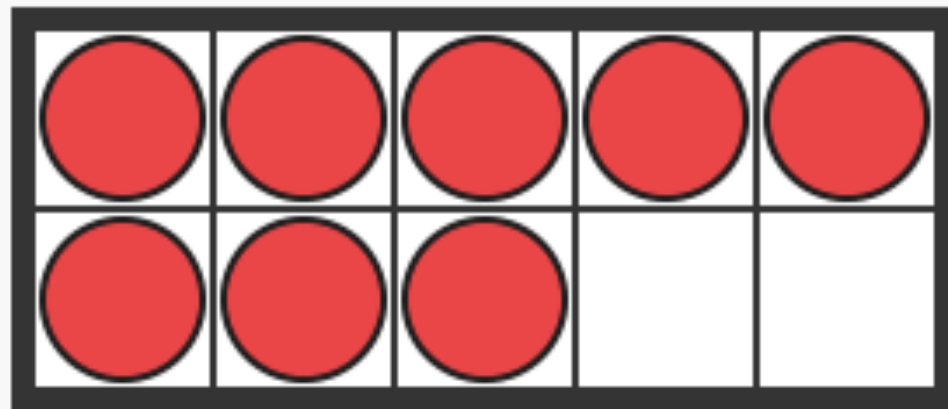
When I take away 3
I see 5 and 1 is 6.

I can count back three.

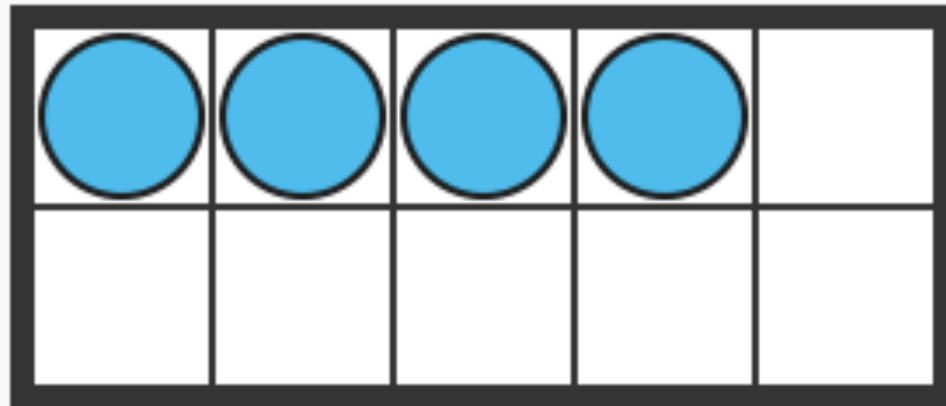
I can think $3 + \underline{\quad} = 9$

Bridging Through Ten

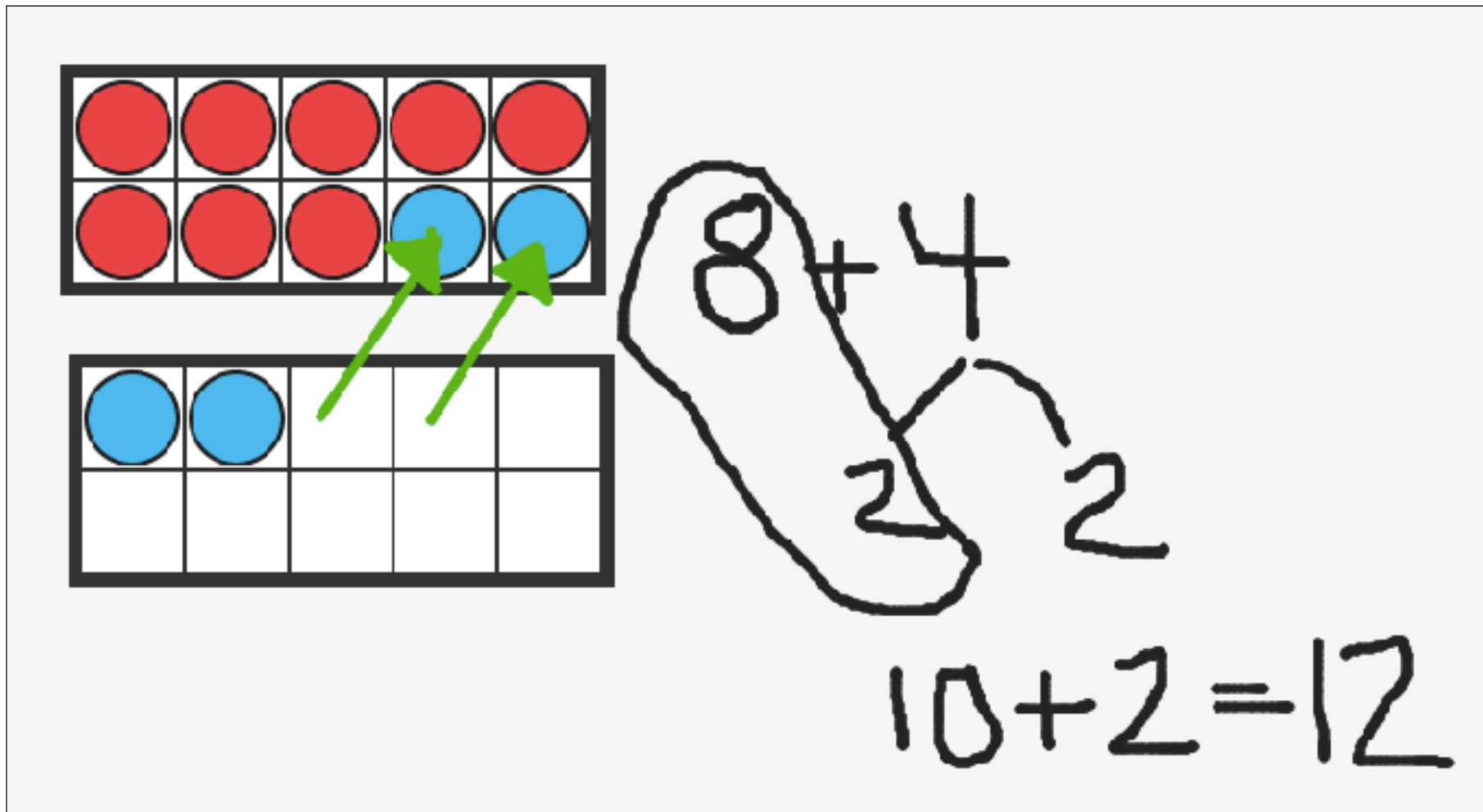
Build 8 on your
top ten frame



Build 4 on your
top ten frame



Bridging through 10



Taking away from teens

$$17 - 3 =$$

I can count backward by 3.

I can subtract 3 from 7 and I know that is 4
and I know 10 and 4 is 14.

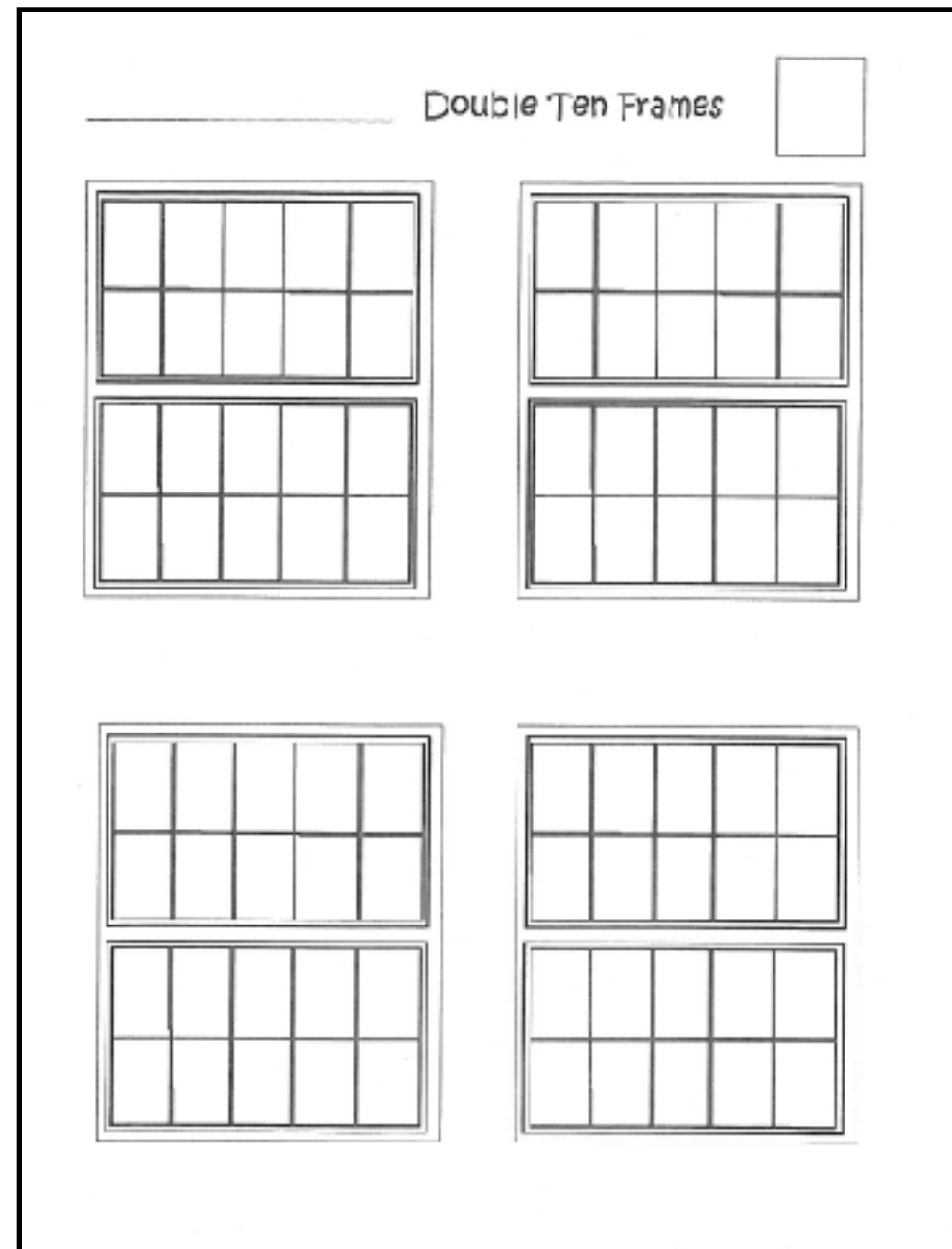
I can also think $3 + \underline{\quad} = 7$ and then
add that to ten.

Connecting Representations

Concrete

Pictorial

Abstract



Adding with 2-digit numbers

Whole tens and hundreds

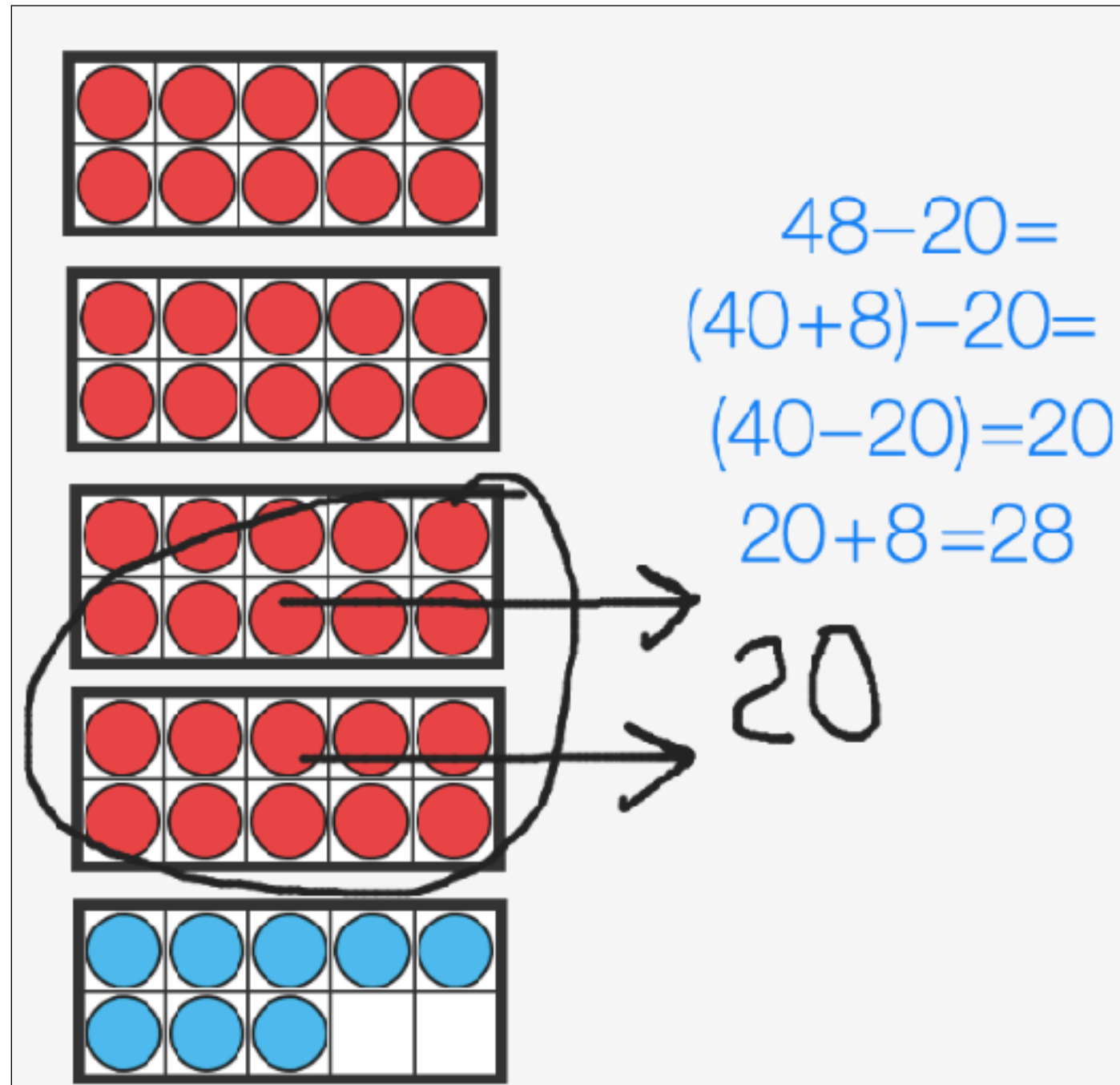
27 + 20

$(20 + 7) + 20 =$

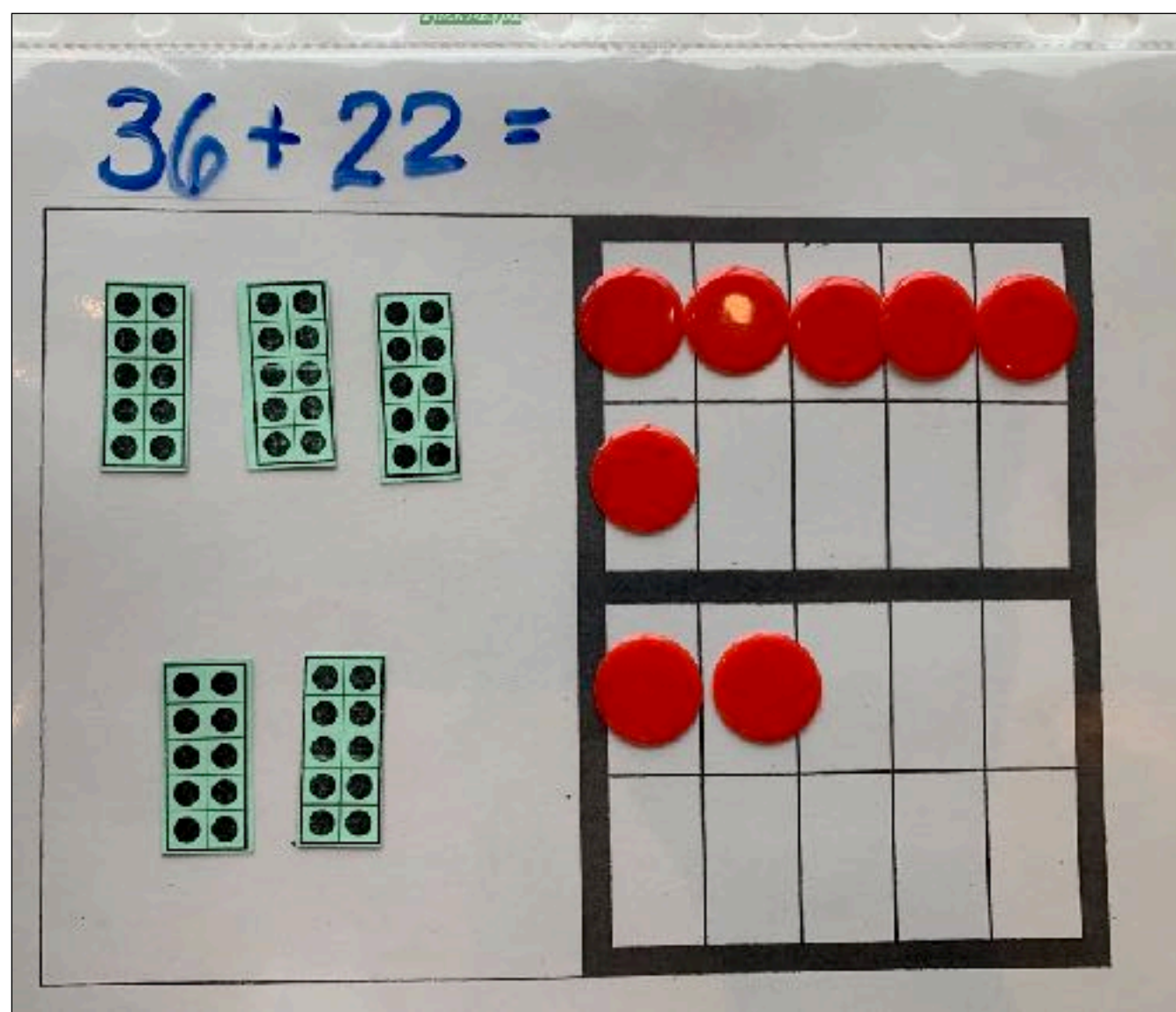
$(20 + 20) + 7 = 47$

Subtracting with 2-digit numbers

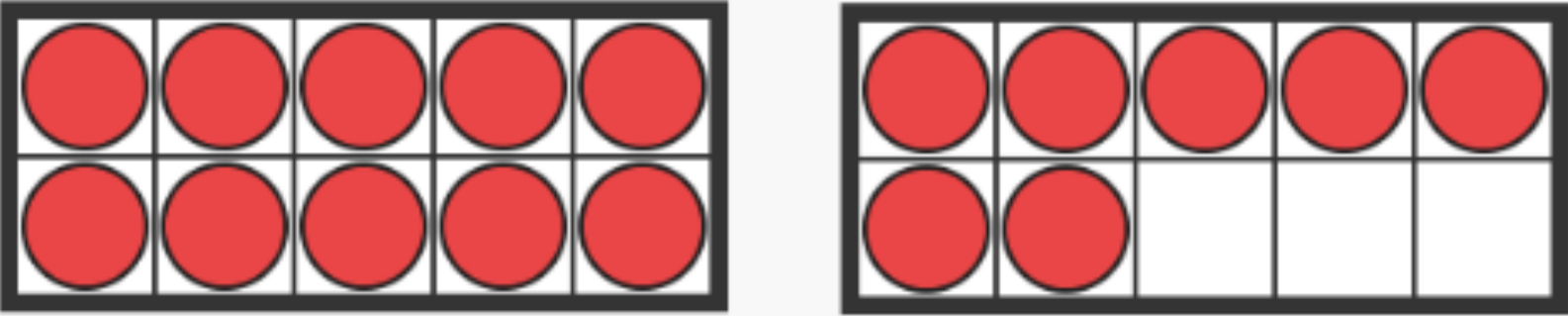
Whole tens and hundreds



Adding/subtracting tens and ones without regrouping



Taking away from teens



The diagram shows two base ten blocks. The first block is a ten-rod, which is a rectangle divided into two rows of five squares each, all filled with red circles. The second block is a one-rod, which is a rectangle divided into two rows of five squares each. The top row is filled with red circles, and the bottom row has two squares filled with red circles and three empty squares.

$$17 - 9 =$$
$$(10 + 7) = 17$$
$$(10 - 9) + 7 =$$
$$1 + 7 = 8$$

Adding with regrouping

Place Value Ten Frame Board

28
+
35
—

The board shows two ten frames. The top ten frame is filled with 28 purple circular chips, representing 2 tens and 8 ones. The bottom ten frame is filled with 35 purple circular chips, representing 3 tens and 5 ones. The total number of chips is 63, which is the sum of 28 and 35.

●	●	●	●	●
●	●	●		
●	●	●	●	●

●	●	●	●	●
●	●	●	●	●

Adding with regrouping

★ Place Value Ten Frame Board ★

28
+
35
—

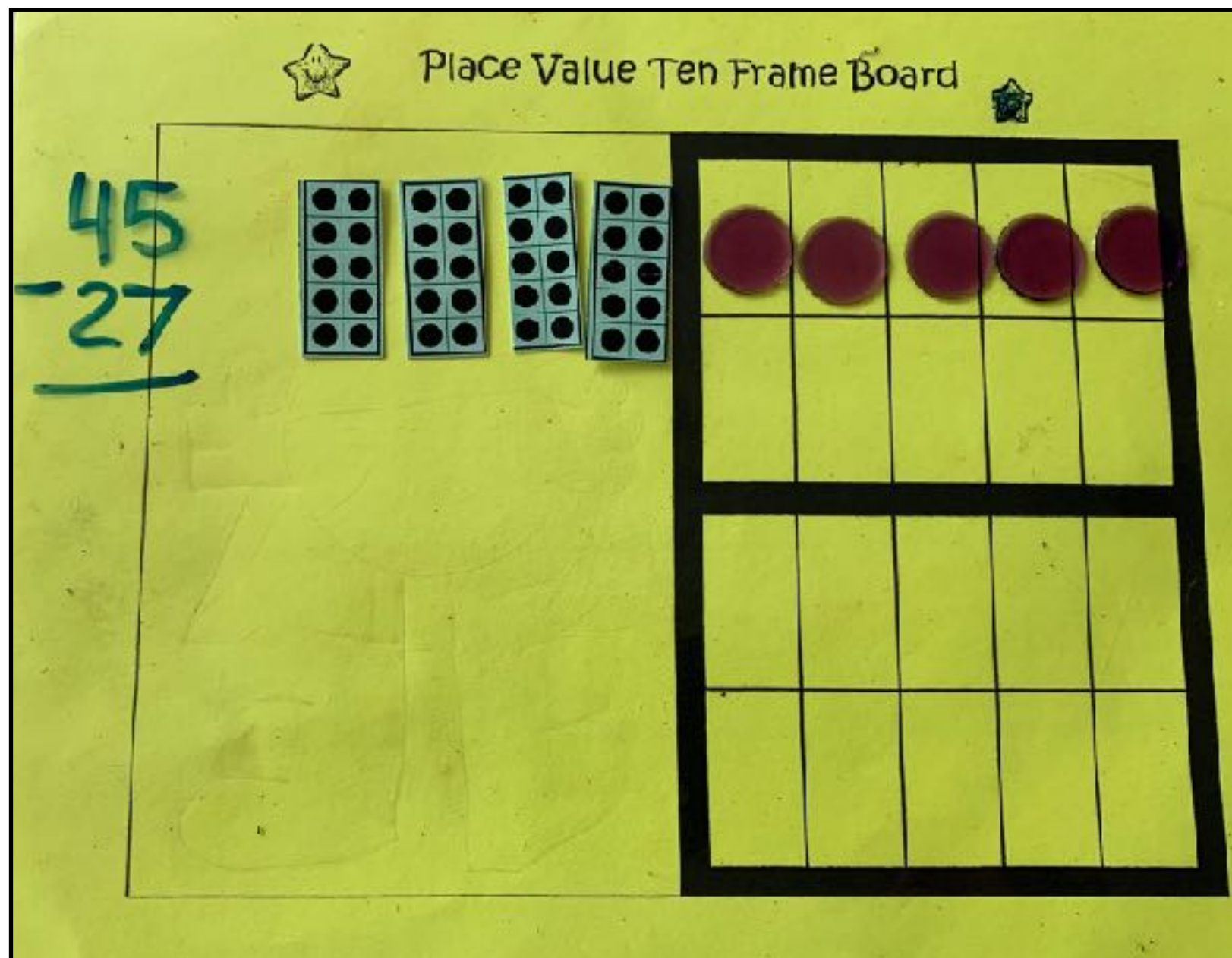
20 + 8
30 + 5
—
50 + 13 = 63

Diagram illustrating the addition of 28 and 35 using place value ten frames and base ten blocks.

The diagram shows two ten frames. The top ten frame represents 28, with 2 tens (represented by two full columns of 10 dots each) and 8 ones (represented by 8 dots in the first column of the second row). The bottom ten frame represents 35, with 3 tens (represented by three full columns of 10 dots each) and 5 ones (represented by 5 dots in the first column of the first row).

The base ten blocks show 2 tens rods and 8 ones units for 28, and 3 tens rods and 5 ones units for 35. The blocks are arranged to show the regrouping process: 2 tens rods and 3 tens rods are combined to make 5 tens rods, and 8 ones units and 5 ones units are combined to make 13 ones units, which is then regrouped into 1 ten rod and 3 ones units, resulting in 6 tens rods and 3 ones units (63).

Subtraction with decomposing



Subtraction with decomposing

Place Value Ten Frame Board

45
- 27
—

40 + 5
30 ¹⁰

30 + -15
-20 + -7
—
10 + 8 = 18

Take these away

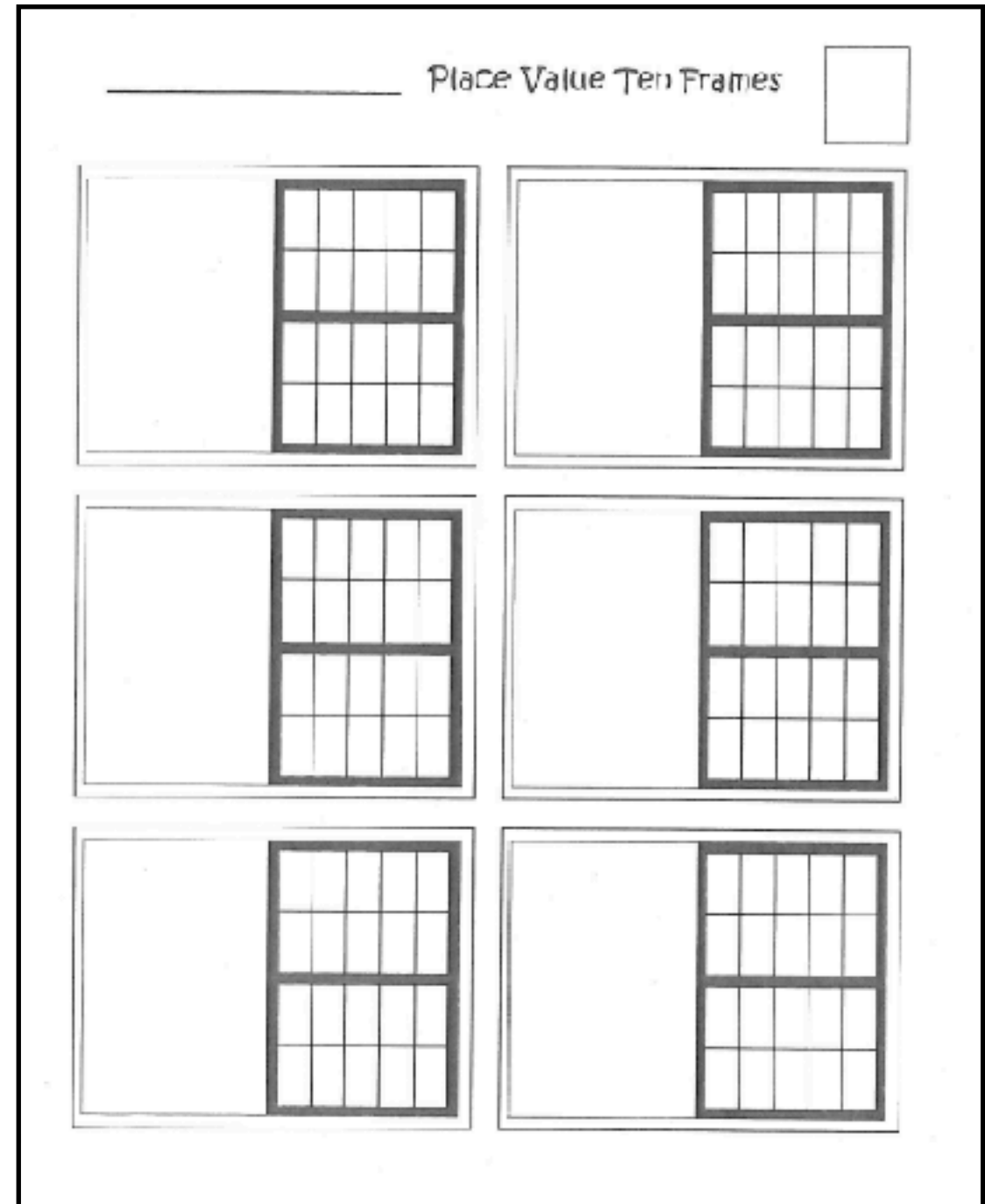
●	●	●	●	●					
●	●	●	●	●					
●	●	●	●	●					

Connecting Representations

Concrete

Pictorial

Abstract





We do not “teach” the strategies.

Instead we **INTENTIONALLY pose questions** that would encourage a strategy.

After students have shared their thinking around the strategy and students have heard this many times, ask the students
“What we could call the strategy?”

Name it and build a class anchor chart.

Addition Strategies

Making Tens $2 + 7 + 8 = 17$

$\swarrow \quad \searrow$
 $10 + 7$

Adding in Chunks $4 + 5 + 7 = 16$

$\swarrow \quad \searrow$
 $9 + 7$

Add the tens, then add the ones

$18 + 13 = 31$

$\swarrow \quad \searrow$
 $10 + 10 \quad 8 + 3 \quad 20 + 11 = 31$

Take from one number and give to the other

$9^+ + 26^- = 35$
 $10 + 25 = 35$

Doubles/Near-Doubles

$7 + 7 = 14$
 $7 + 8 = 15$
 $7 + 6 = 13$

Breaking each number into its place value

$122 + 37 = 159$
 $100 + 20 + 30 + 2 + 7$

Making Landmark or Friendly numbers

$19^+ + 5^- = 20 + 5 = 25 - 1$

Chart from Andrea Kish
Grades 4 Teacher

you
are
amazing

REMEMBER THAT.