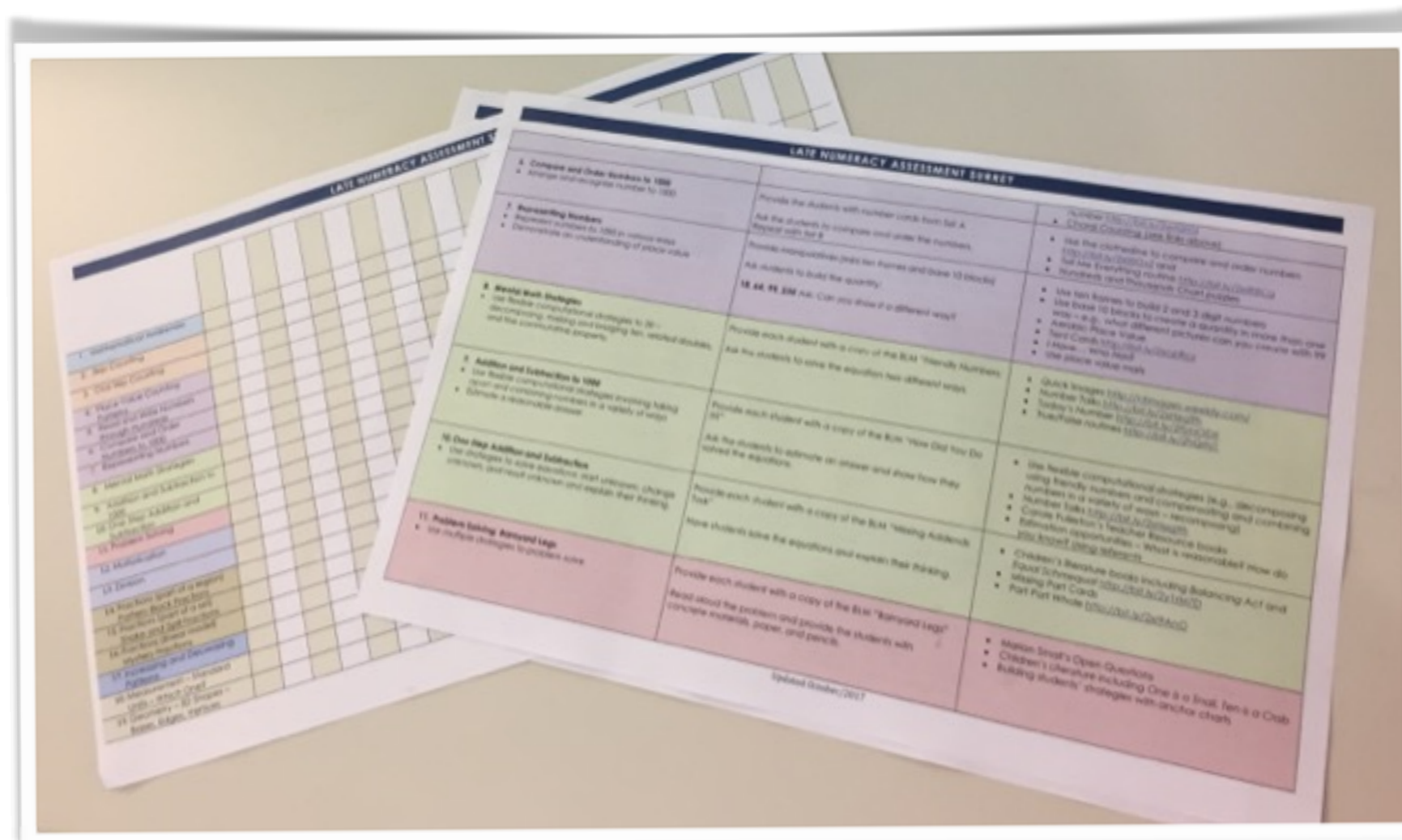


Late Numeracy Assessment

October 5th, 2017

Presented by Jen Barker



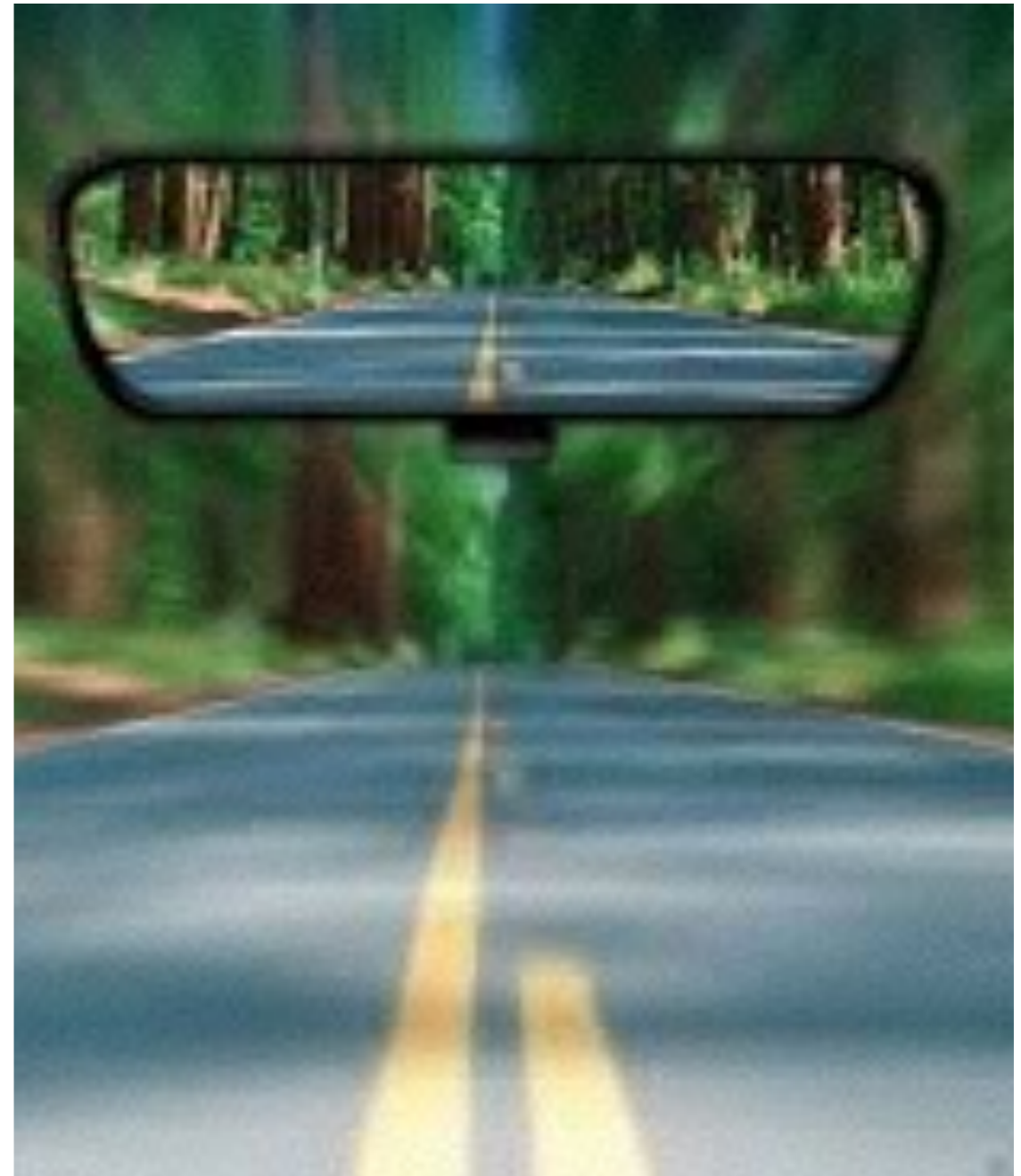
Acknowledgement



We recognize that we are here today to learn on the unceded, shared territories of the Coast Salish people on which our schools are located. We recognize the Katzie and Semiahmoo First Nations who have signed the Surrey Schools Aboriginal Education Enhancement Agreement.

History of the Screener

- Vernon School District - Jen Carter
- Developed 2 - 3 years ago
- Grassroots Initiative - teacher create
- First Steps Focus
- Essential Understandings - Research
- Concepts need to be developed all year long
- Early Numeracy adapted by Sandra Ball last year
- Last Spring Sandra and I worked together on the Late Numeracy Screener and Patrice this Fall



Guiding Questions

- How can we identify the student's strengths in numeracy?
- What do they know and understand?
- How can we identify learning gaps?
- How can we support the learning?



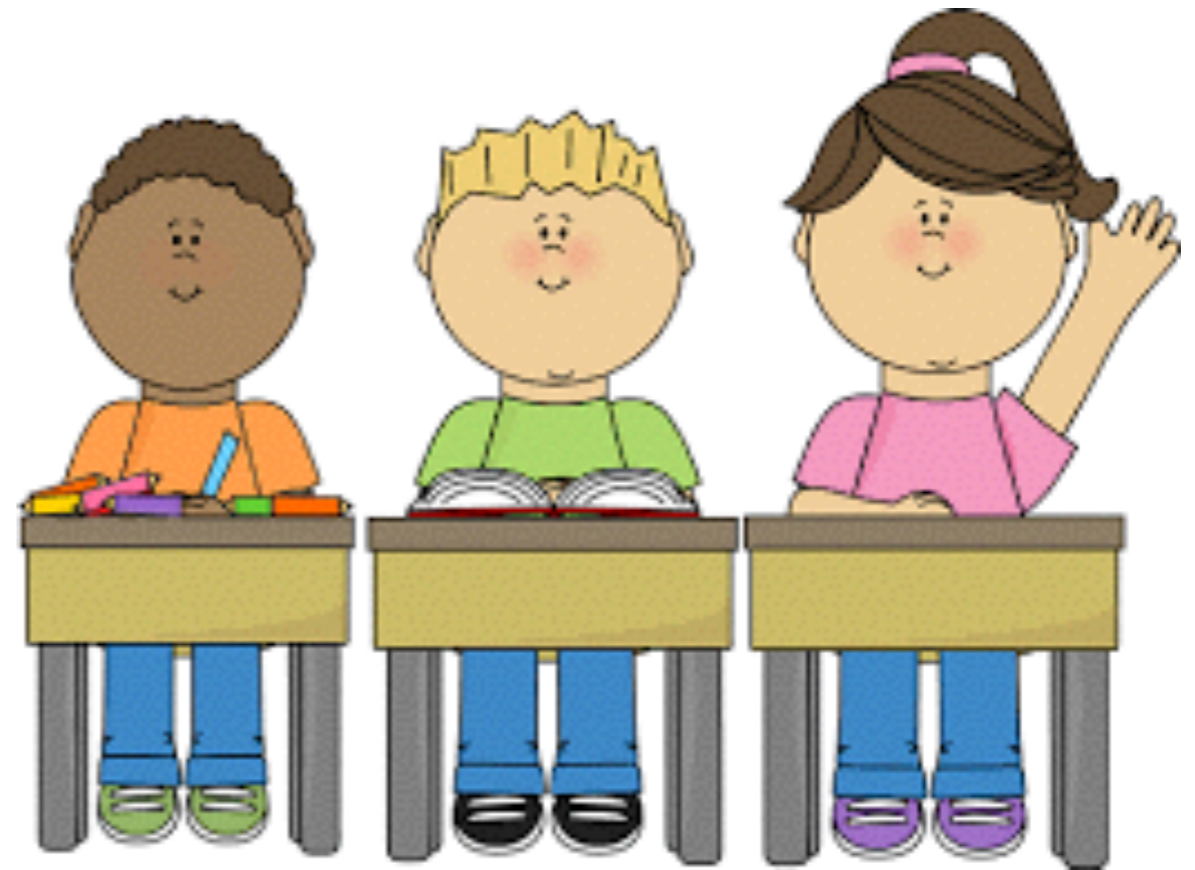
Late Numeracy Essentials

- Mathematical Awareness
- Skip Counting
- Place Value
- Comparing and Ordering Num
- Representing Numbers
- Mental Math Strategies
- Addition and Subtraction
- Problem Solving
- Addition and Subtraction with Unknowns
- Multiplication
- Division
- Fractions
- Increasing and Decreasing Patterns
- Measurement
- Geometry



Whose this for?

- Inventory - Grade 3
- Diagnostic -
Grades 3 - 5
- Older students with
learning disabilities



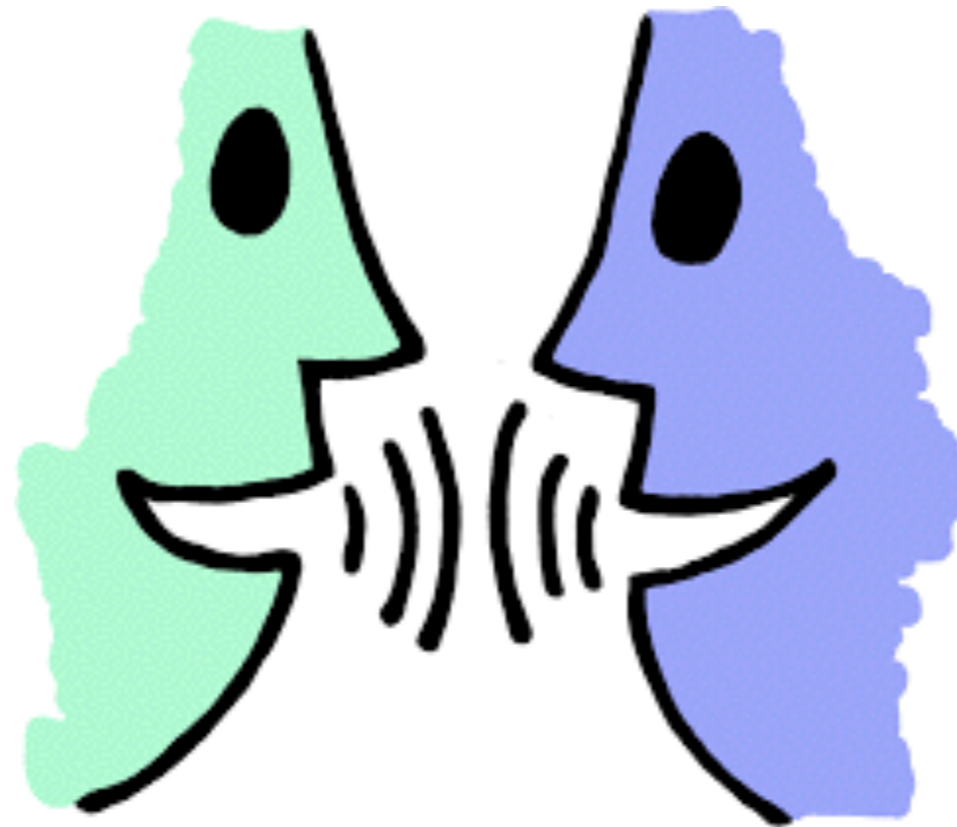
Mathematical Awareness

- Awareness of math around us.
- Thinking about math and how it relates to us.
- Adjust the questions to be relevant to the student.





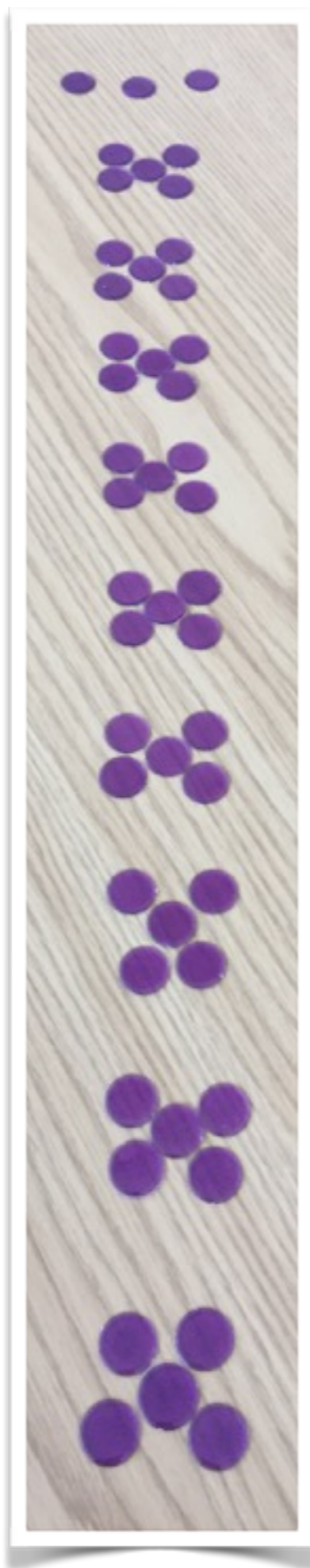
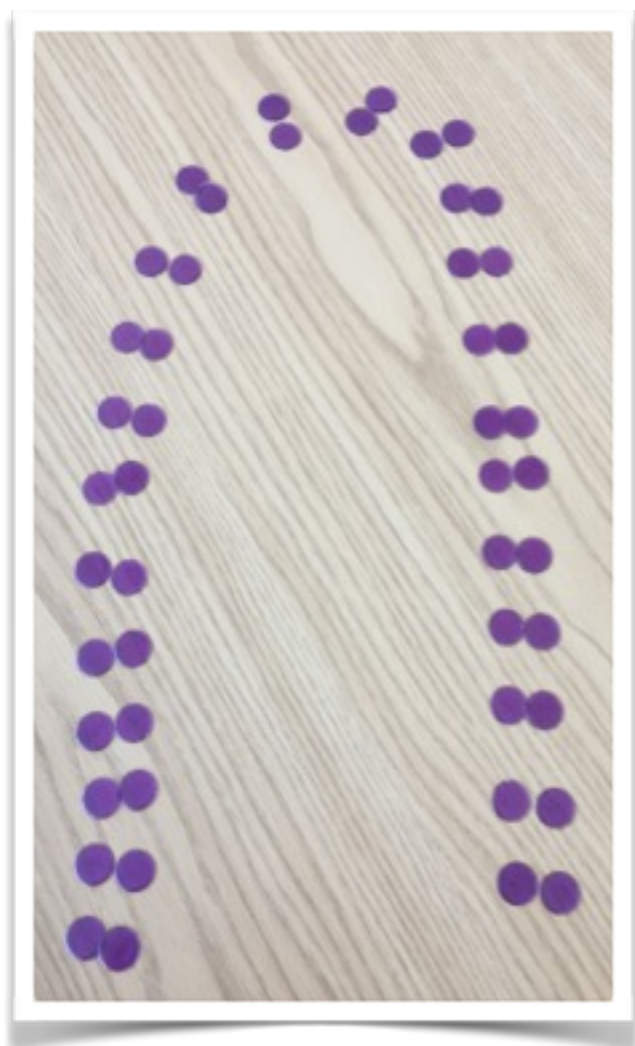
Turn and Talk



How might you
support this student?

Skip Counting

- Does the student have conceptual understanding (e.g., by 2's) that 2 items are being counted?
- Do they understand that the quantity remains the same when counted in different ways? (conservation)
- Do they organize groups to keep track of the count?

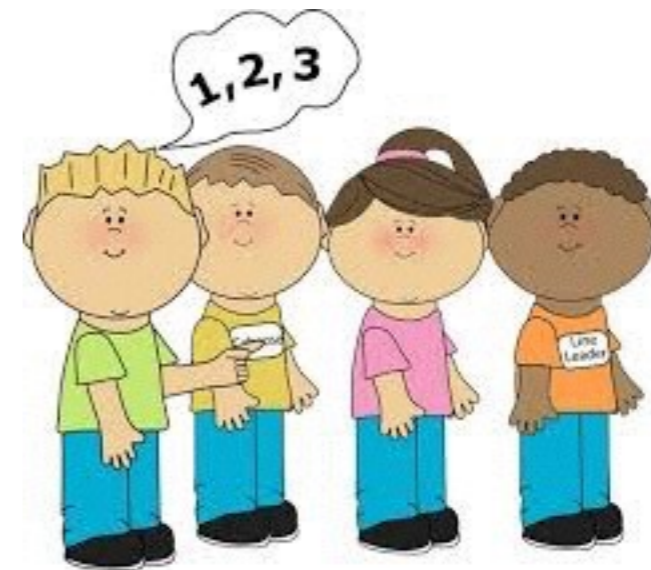






Oral Skip Counting

- Forwards by 2's starting at 110
- Backwards by 2's from 88
- Forward by 3's to 36
- Forward by 25's to 125



Count Around the Circle



Place Value Counting Patterns

- BLM “Up and Through the Hundreds”
- Can you fill in the blanks by 1’s, 10’s, and 100’s
- What patterns do you see?

Up and Through the Hundreds

1. Write the numbers to the end of the boxes.
Begin at 91 and count by ones to the end of the boxes.

91	92	93	94	95
96	97	98	99	100

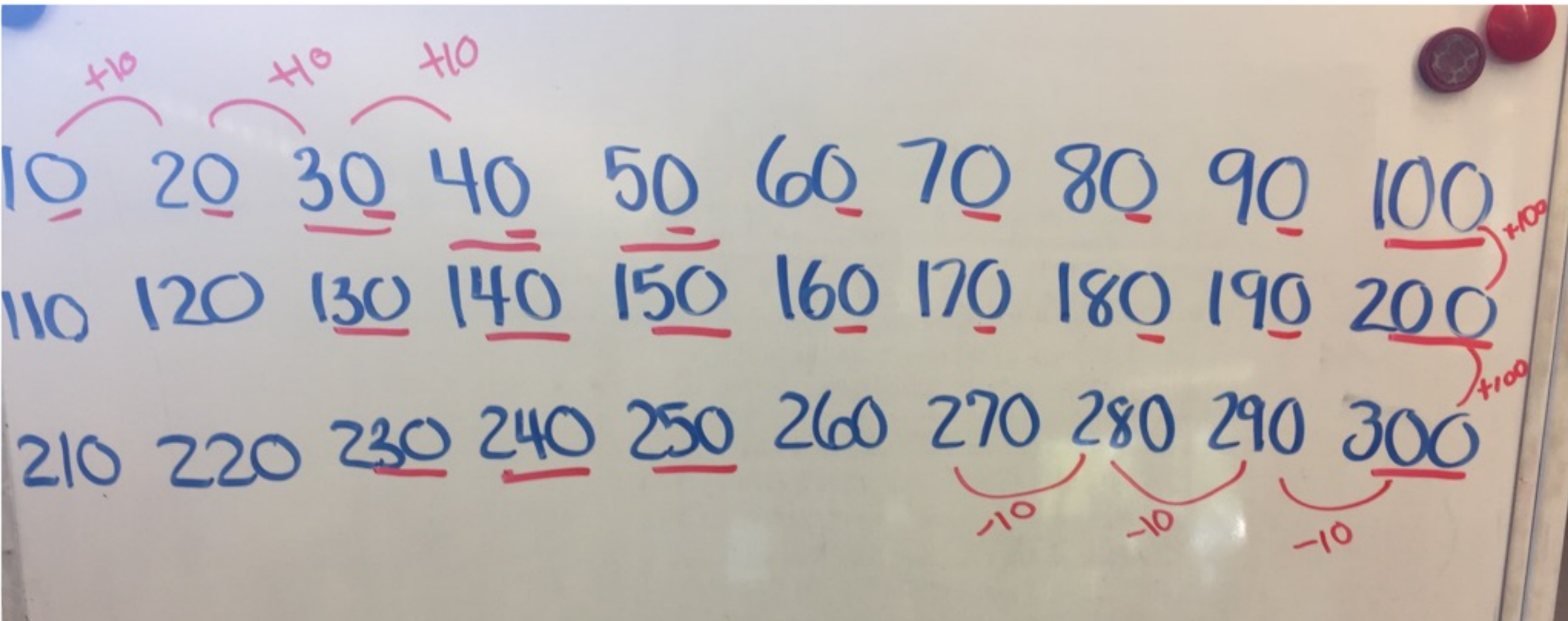
2. Write the numbers to the end of the boxes.
Begin at 421 and count by tens to the end of the boxes.

421	431	441	451	461
471	481	491	501	?

3. Write the numbers to the end of the boxes.
Begin at 205 and count by hundreds to the end of the boxes.

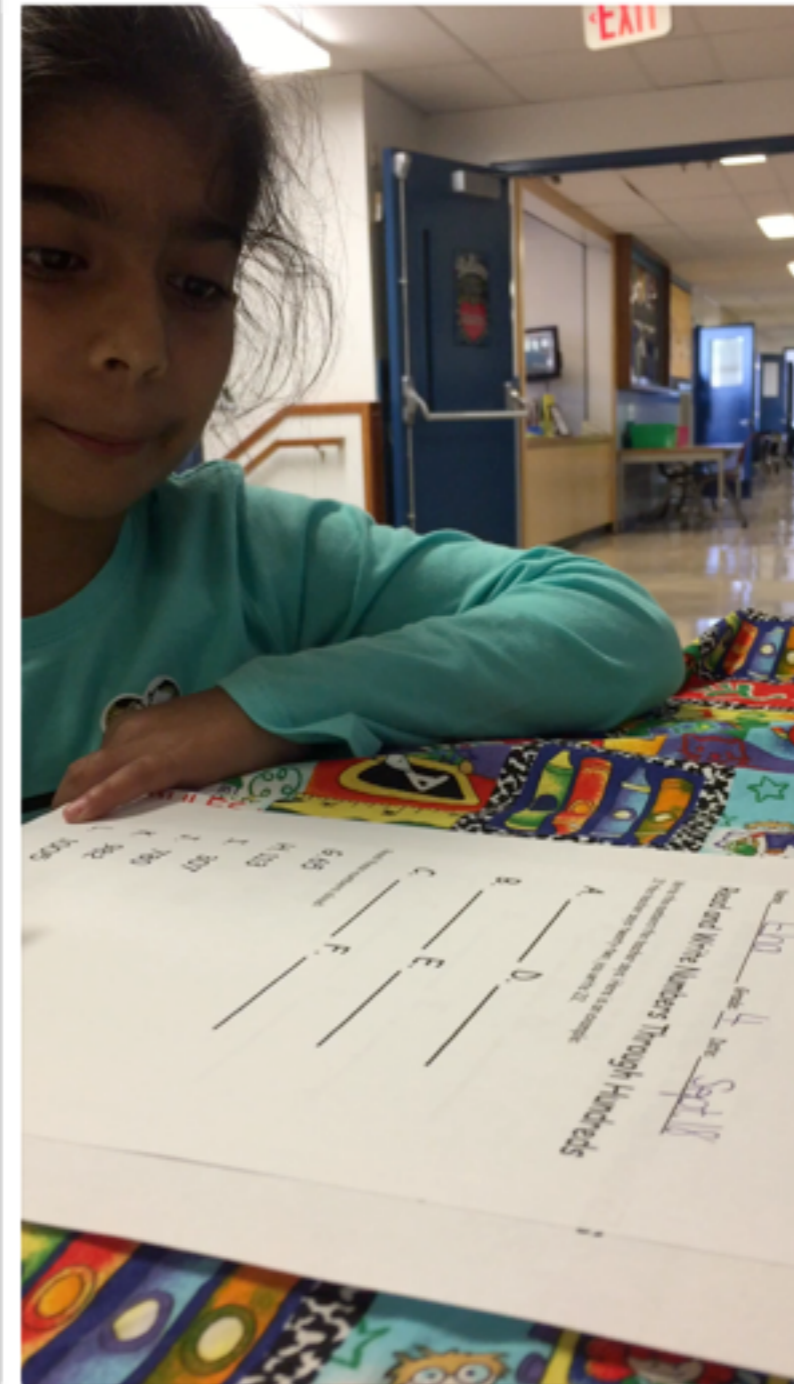
205	305	405	505
605	705	805	905

Choral Count



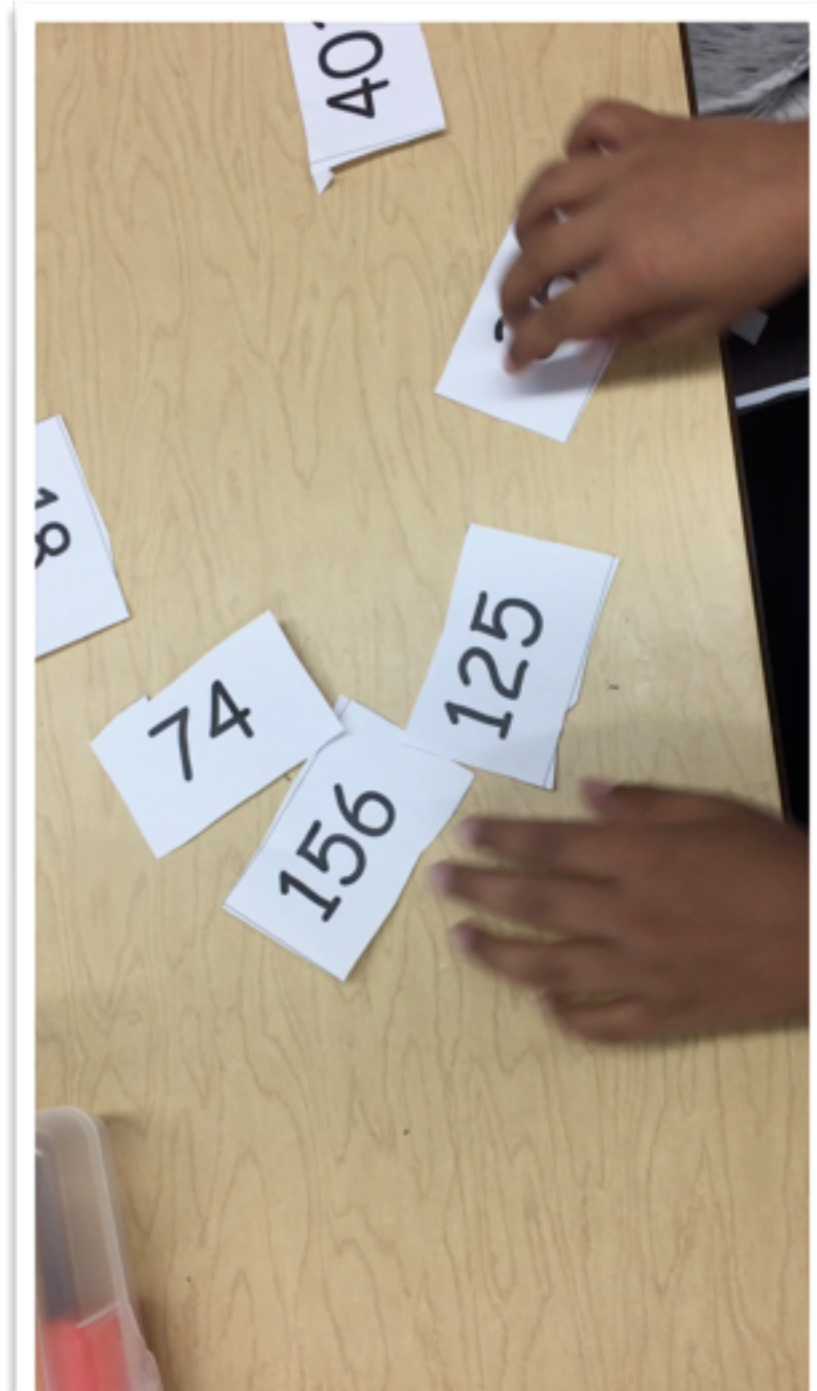
Read and Write Numbers Through Hundreds

- Use place value to read, write, and say numbers.

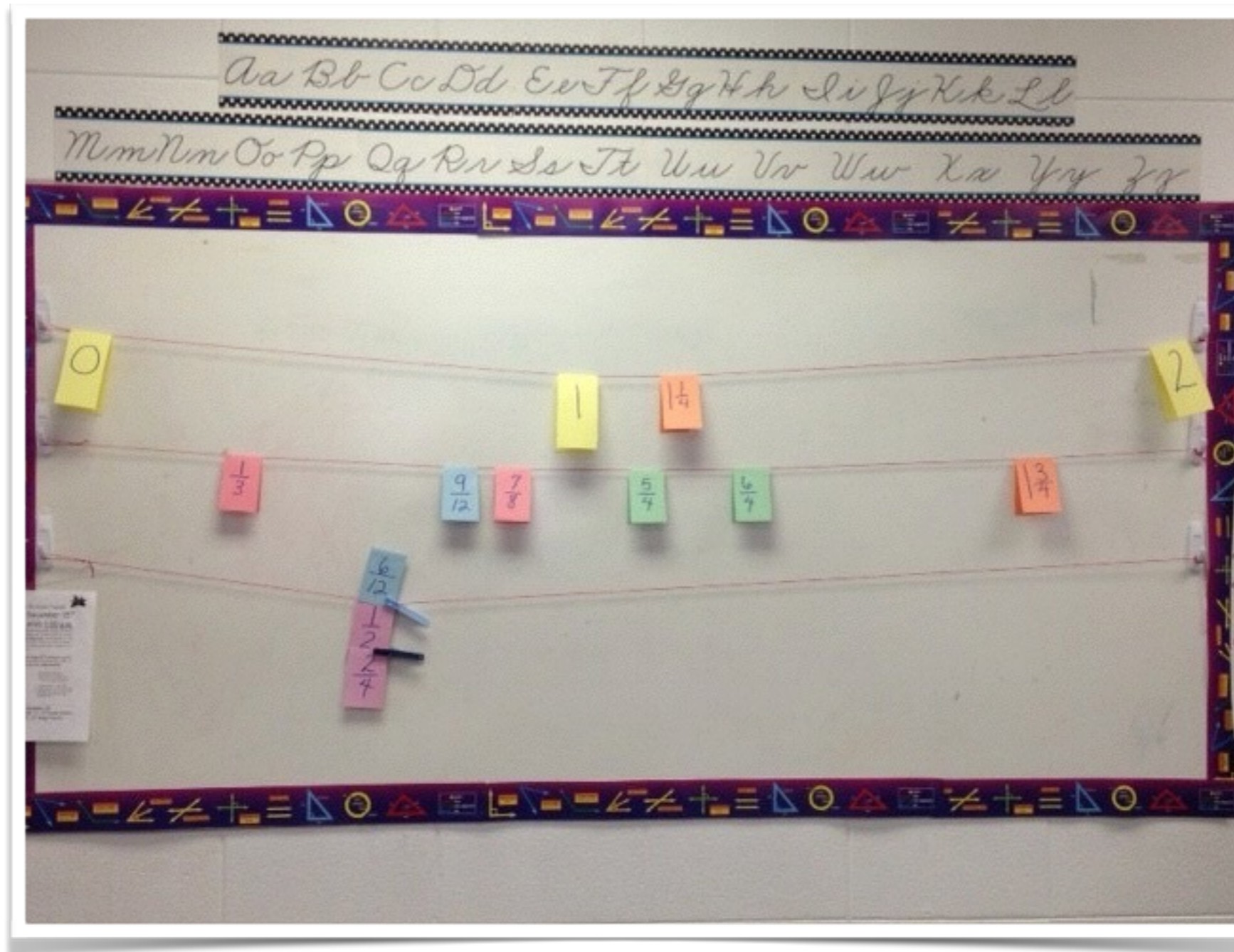


Compare and Order Numbers

- Arrange and recognize number to 1000

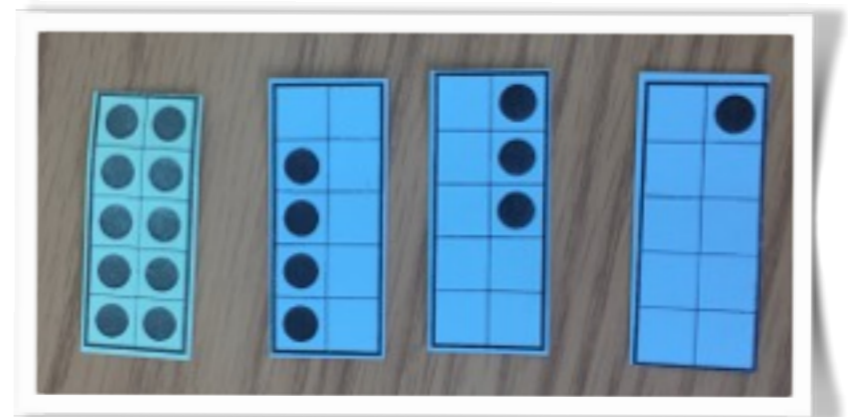
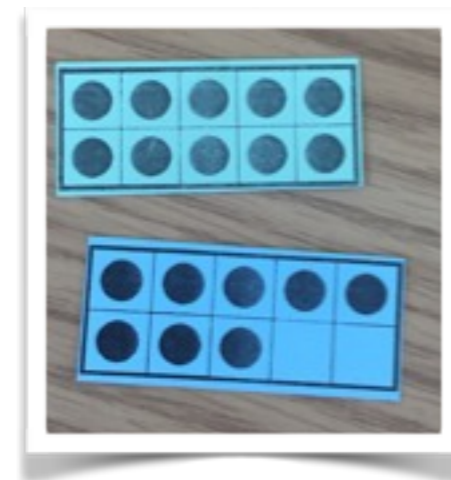
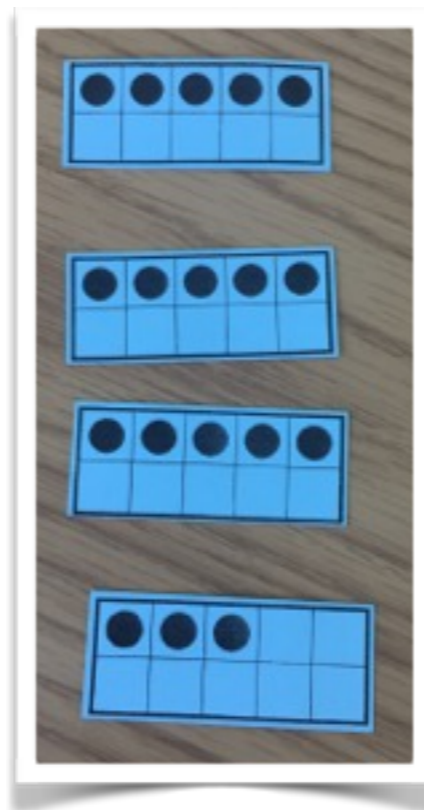


Clothesline Math

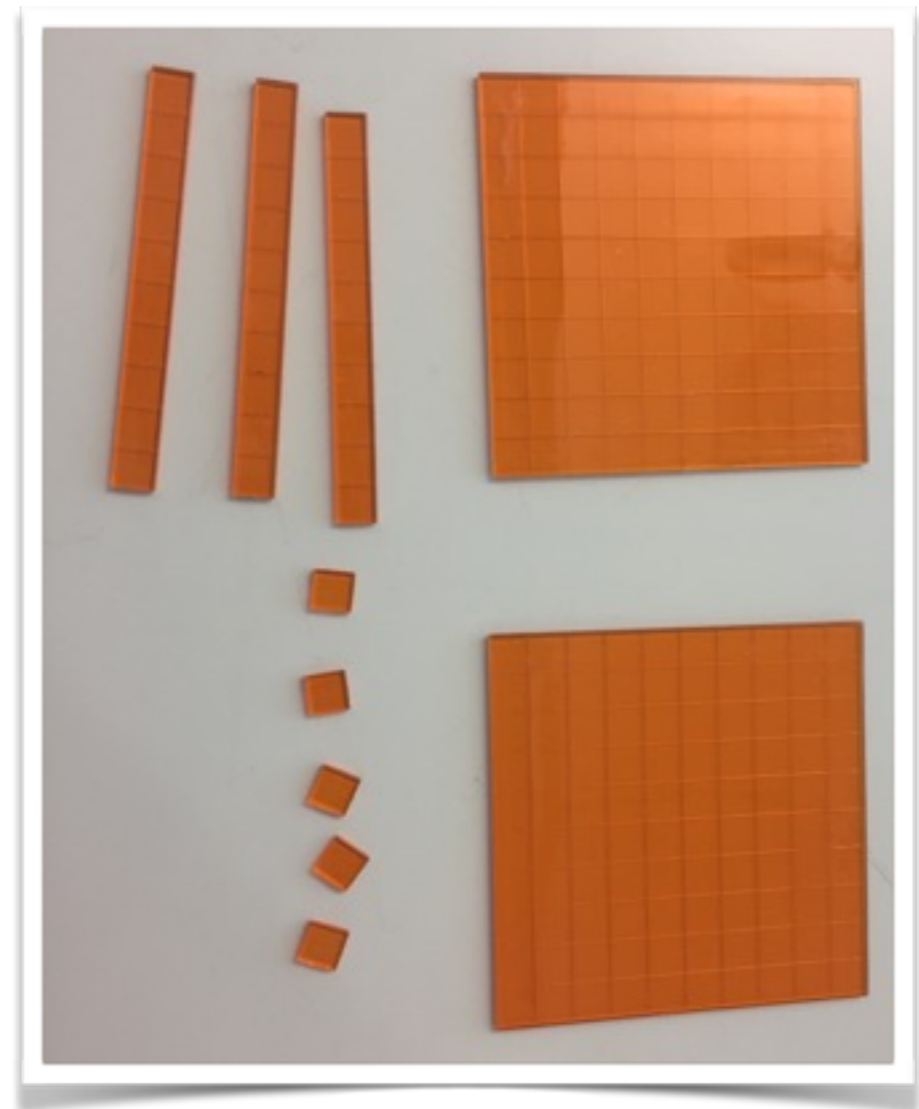
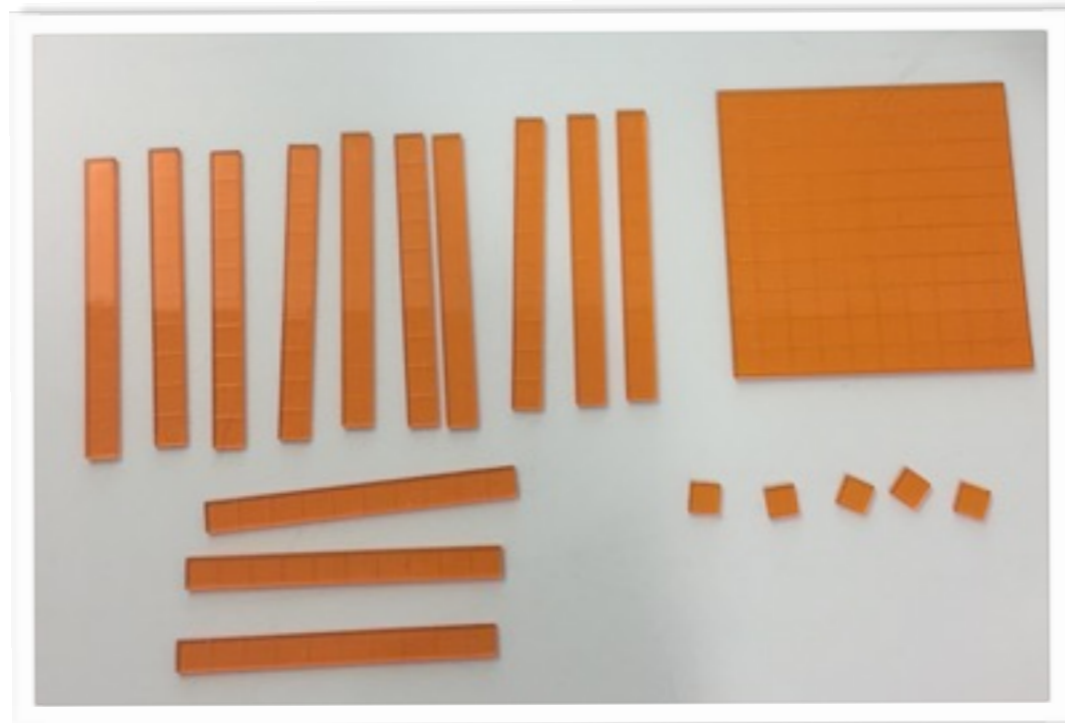
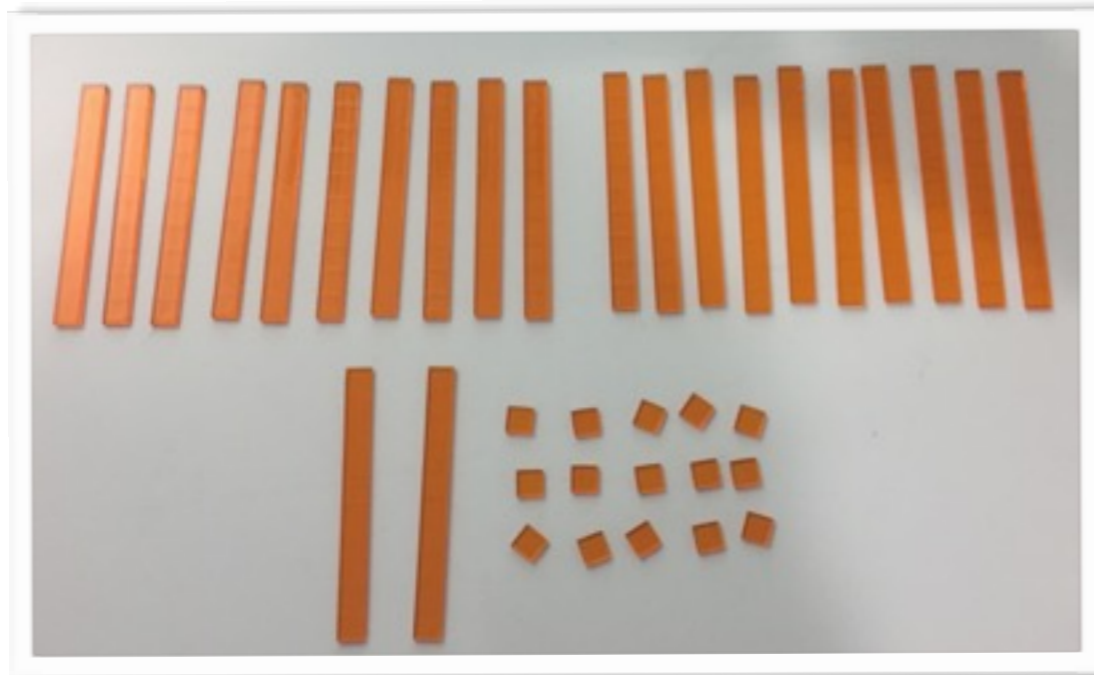


Representing Numbers

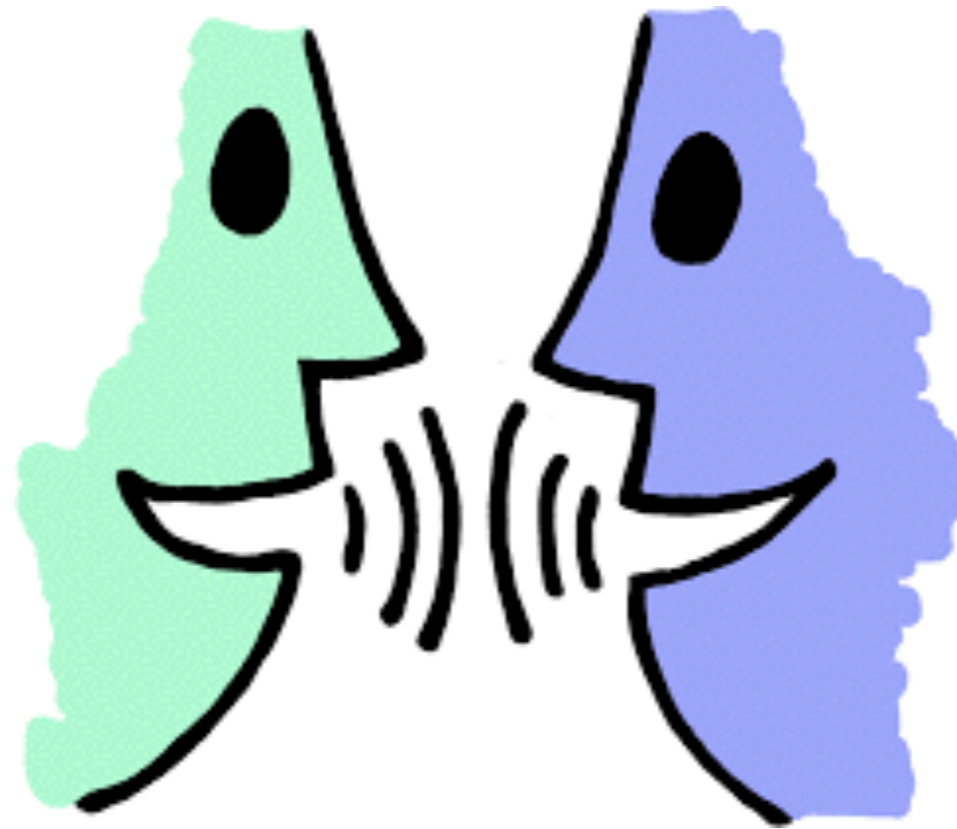
- Can you build the quantity?
- Can you show it another way?



How many ways can you make 235?



Turn and Talk



How might these tasks help
inform your instruction?

Mental Math Strategies

- Can the student use flexible computation strategies to 20?

A. $8 + 7 = 17$

Explain your strategies using words, pictures, and/or numbers and symbols.

One way I solved the question	A second way I solved the question
I counted from 2	I know what's $8 + 8$ so I just -1

Addition and Subtraction to 1000

- Can the student use flexible computation strategies involving taking apart and combining numbers in a variety of ways?

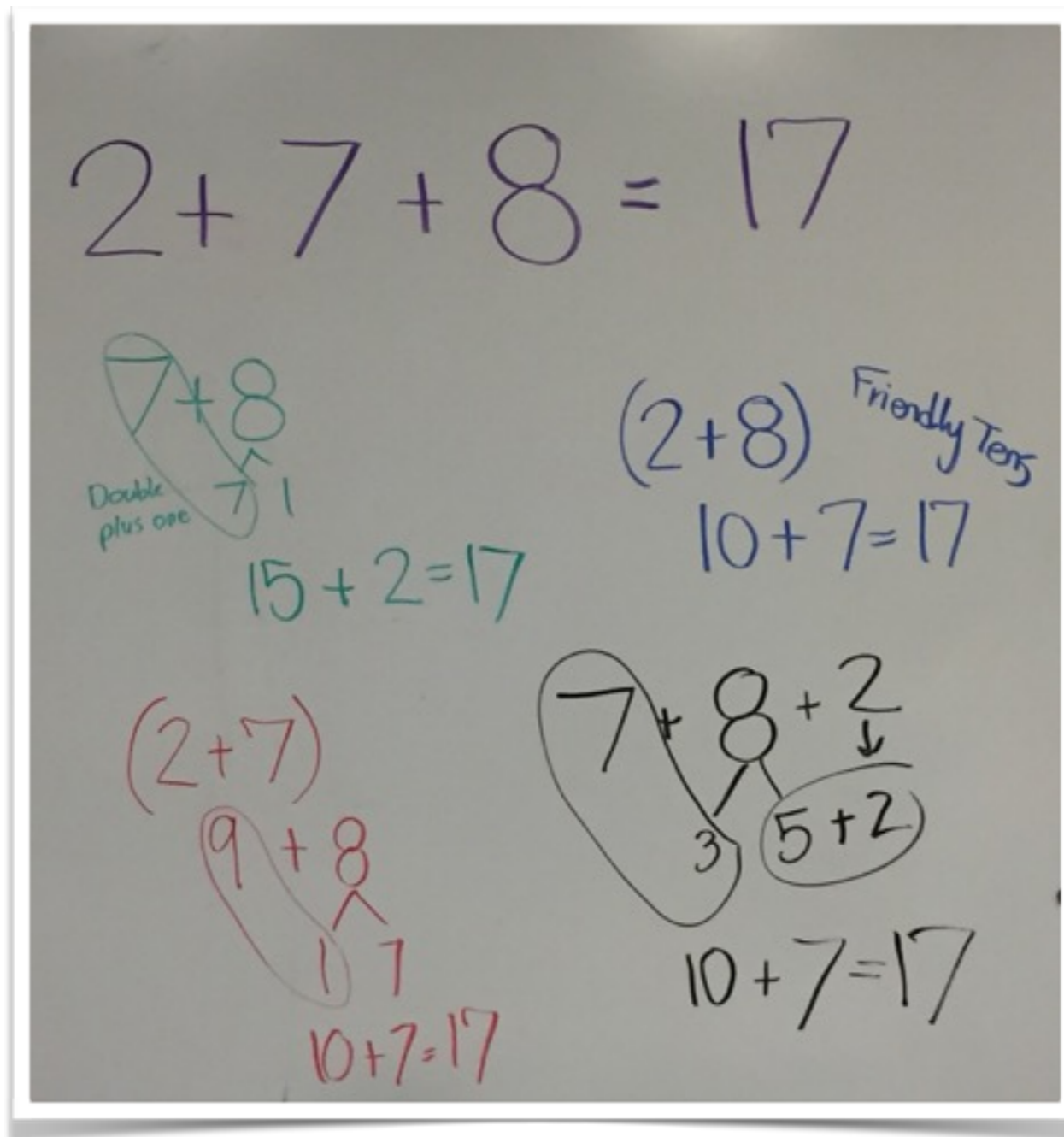
Addition: How Did You Do It?

$26 + 37 =$ My estimate is <u>70</u> Show your thinking below! $20 + 30 = 50$ $50 + 13 = 63$	$126 + 237 =$ My estimate is <u>370</u> Show your thinking below! $100 + 200 = 300$ $20 + 30 = 50$ $300 + 50 + 13 = 363$
--------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------

Subtraction: How Did You Do It?

$62 - 23 =$ My estimate is <u>40</u> Show your thinking below! $40 - 1 = 39$	$562 - 423 =$ My estimate is <u>140</u> Show your thinking below! $500 - 400 = 100$ $62 - 22 = 40$ $40 - 1 = 39$ $100 + 39 = 139$
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Number Talks



One Step Addition and Subtraction

- Can the student use strategies to solve equations: start unknown, change unknown, and result unknown and explain their thinking.

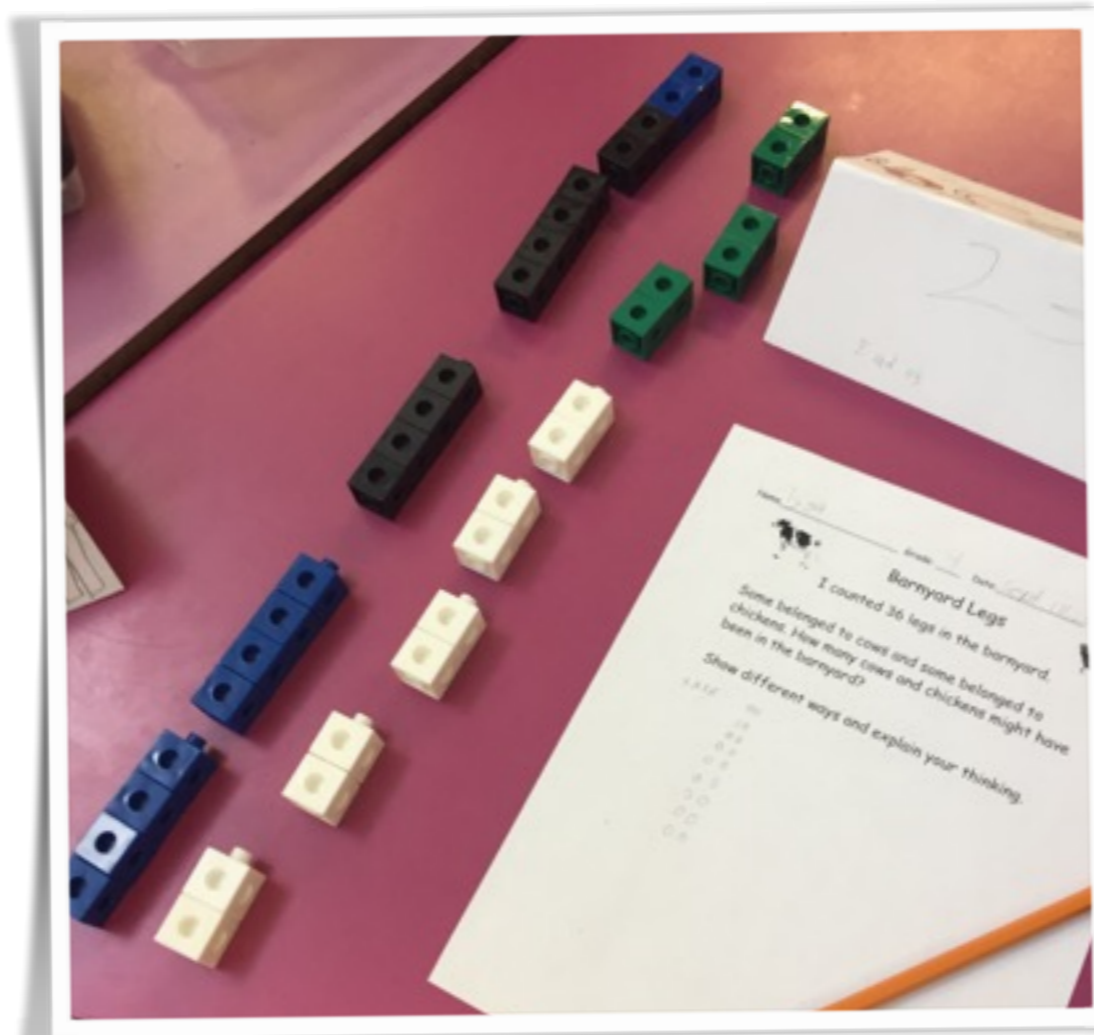
Missing Addends Task

Solve and explain your strategies.

$\underline{9} + 7 = 16$ $16 - 7 = 9$	$9 + 3 = \underline{12}$ $\begin{array}{c} 3 \\ \swarrow \downarrow \searrow \\ 1 \quad 2 \end{array}$ $9 + 10 + 2 = 12$
$9 + \underline{6} = 15$ $15 - 9 = 6$	$8 + 2 = 5 + \underline{5}$ \checkmark $10 = (5 + 5)$ 10

Problem Solving

- Can the student use multiple strategies to solve problems?



Grade: 7

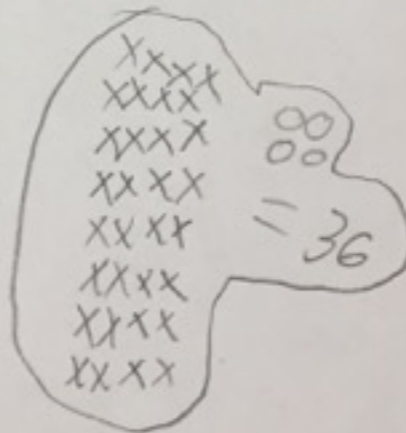
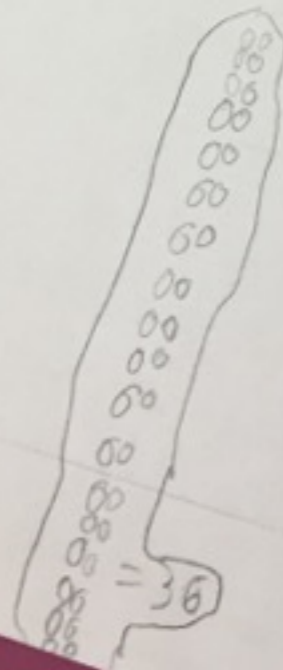
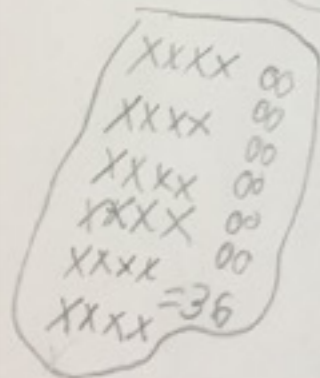
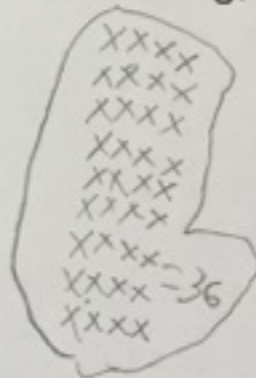
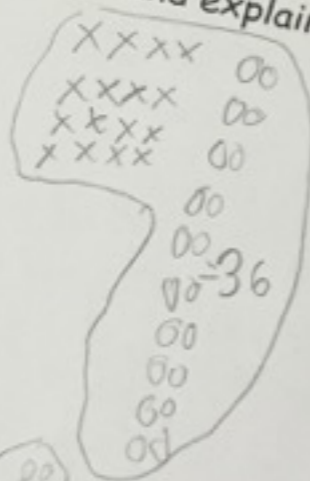
Date: Sept 18, 2018

Barnyard Legs

I counted 36 legs in the barnyard.

Some belonged to cows and some belonged to chickens. How many cows and chickens might have been in the barnyard?

Show different ways and explain your thinking.



Barnyard Legs

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$$4 + 4 + 2 + 4 + 4 + 2 + 4 + 4 + 2 + 2 + 2 + 2 = 36$$

Barnyard Legs

I counted 36 legs in the barnyard.

Some belonged to cows and some belonged to chickens. How many cows and chickens might have been in the barnyard?

Show different ways and explain your thinking.

9 cows

8c 2ch

7c 4ch

6c 6ch

5c 8ch

4c 10ch

Barnyard Legs

I counted 36 legs in the barnyard.

Some belonged to cows and some belonged to chickens. How many cows and chickens might have been in the barnyard?

Show different ways and explain your thinking.

8 chickens
5 cows

9 cows

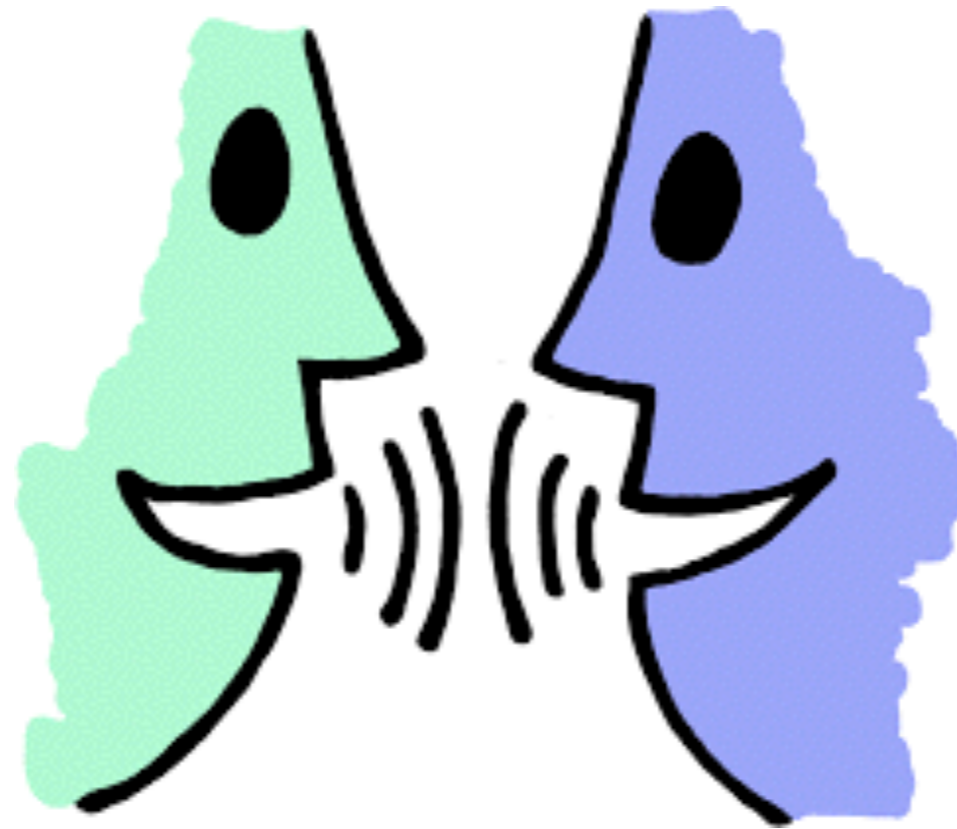
18 chickens

10 cows
10 chickens

8 cows
2 chickens

10 chickens
4 cows

Turn and Talk

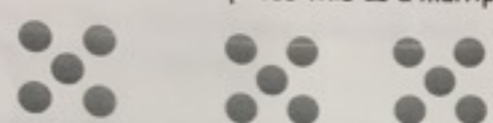


How could you build your
students repertoire of
strategies?

Multiplication


- Does the student understand the concepts of multiplication (groups and arrays)

How Many Do You See In All? How Do You See Them?
How would you express this as a multiplication equation?



15
3 groups of 5
 $3 \times 5 = 15$

How Many Do You See? How Do You See Them?
How would you express this as a multiplication equation?



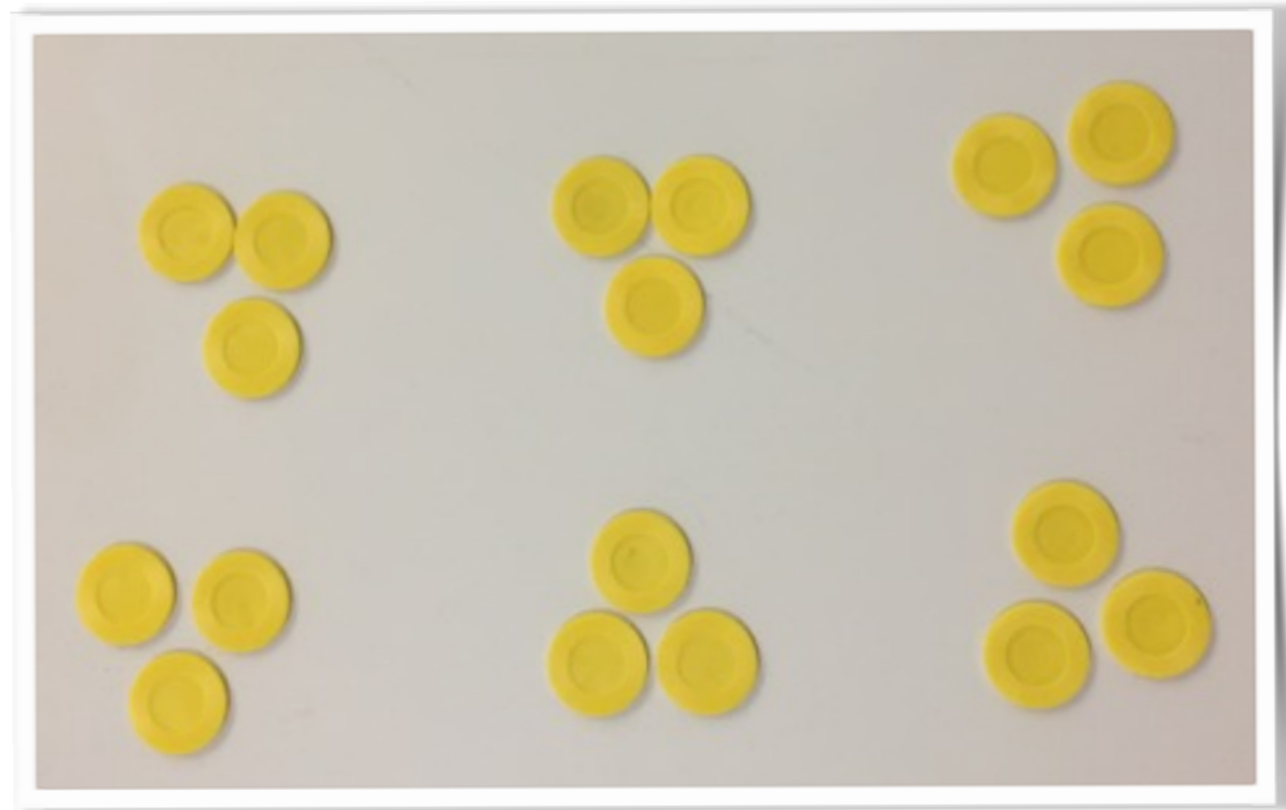
12
 $4 \times 3 = 12$
 $3 \times 4 =$

Real Life Array Discussions

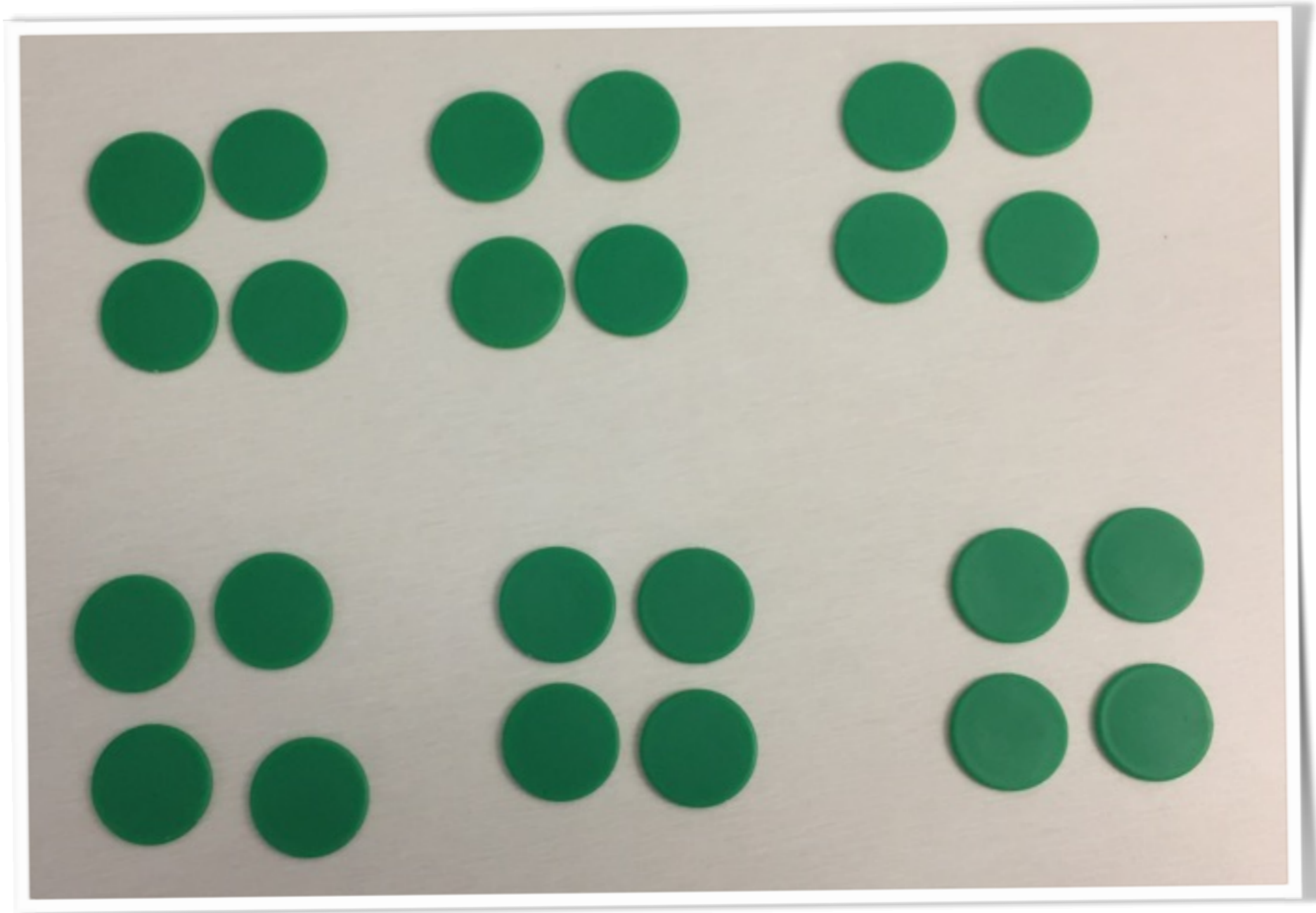


Division

- Does the student understand the concepts of division (sharing and group)



You have 18 cookies. How could you equally share these with 6 friends?

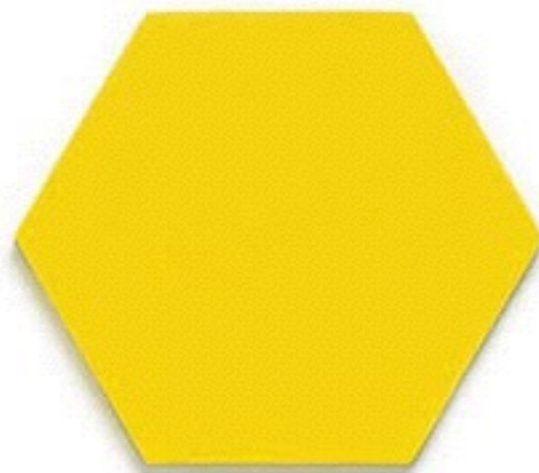


24 students are going on a field trip. Each car can take 4 students.
How many cars will we need?

Fractions - part of a region

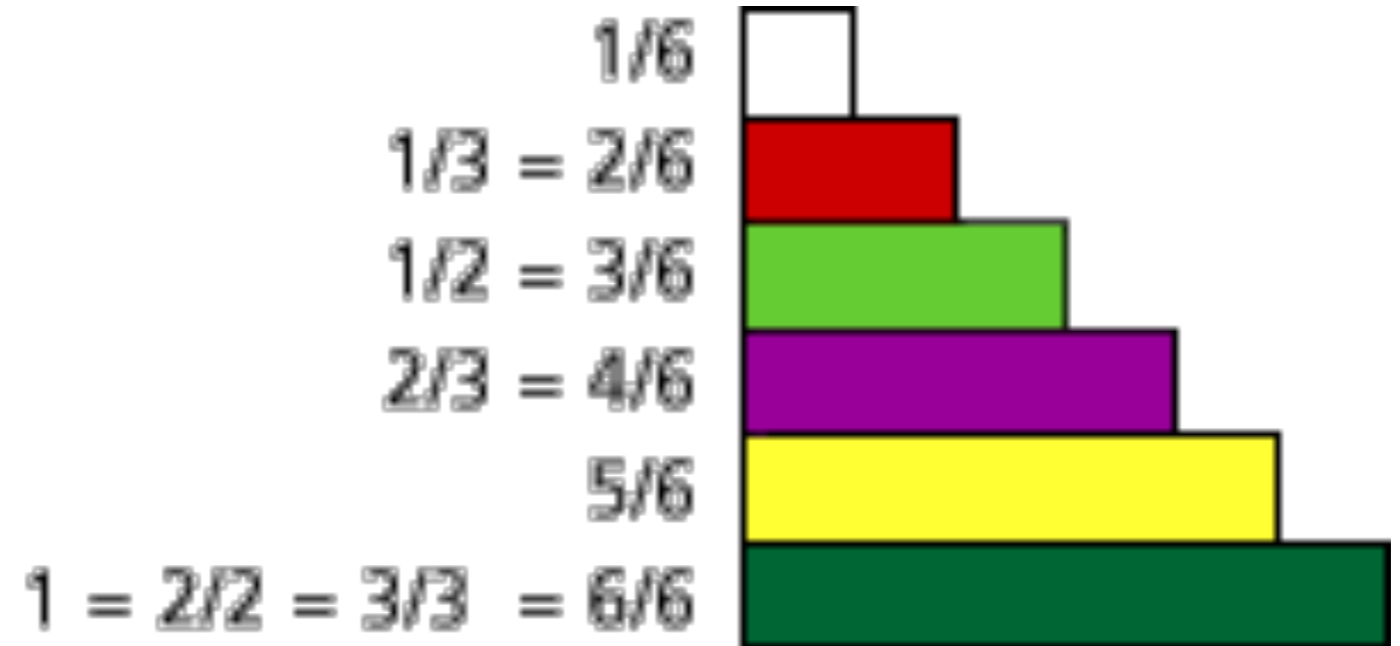
- Does the student understand that fraction parts are equal shares of a whole unit? Can they represent fractions?

If the hexagon represent one whole...



What fraction does the green triangle represent?

Cuisenaire Rods



Fractions - part of a set

- Does the student understand that fraction parts can be equal shares of a set? Can they represent part of set as a fraction?

Shake and Spill

Take 12 two-sided counters in your hand. Shake and spill them onto your workspace.

Record the number of red and yellow.

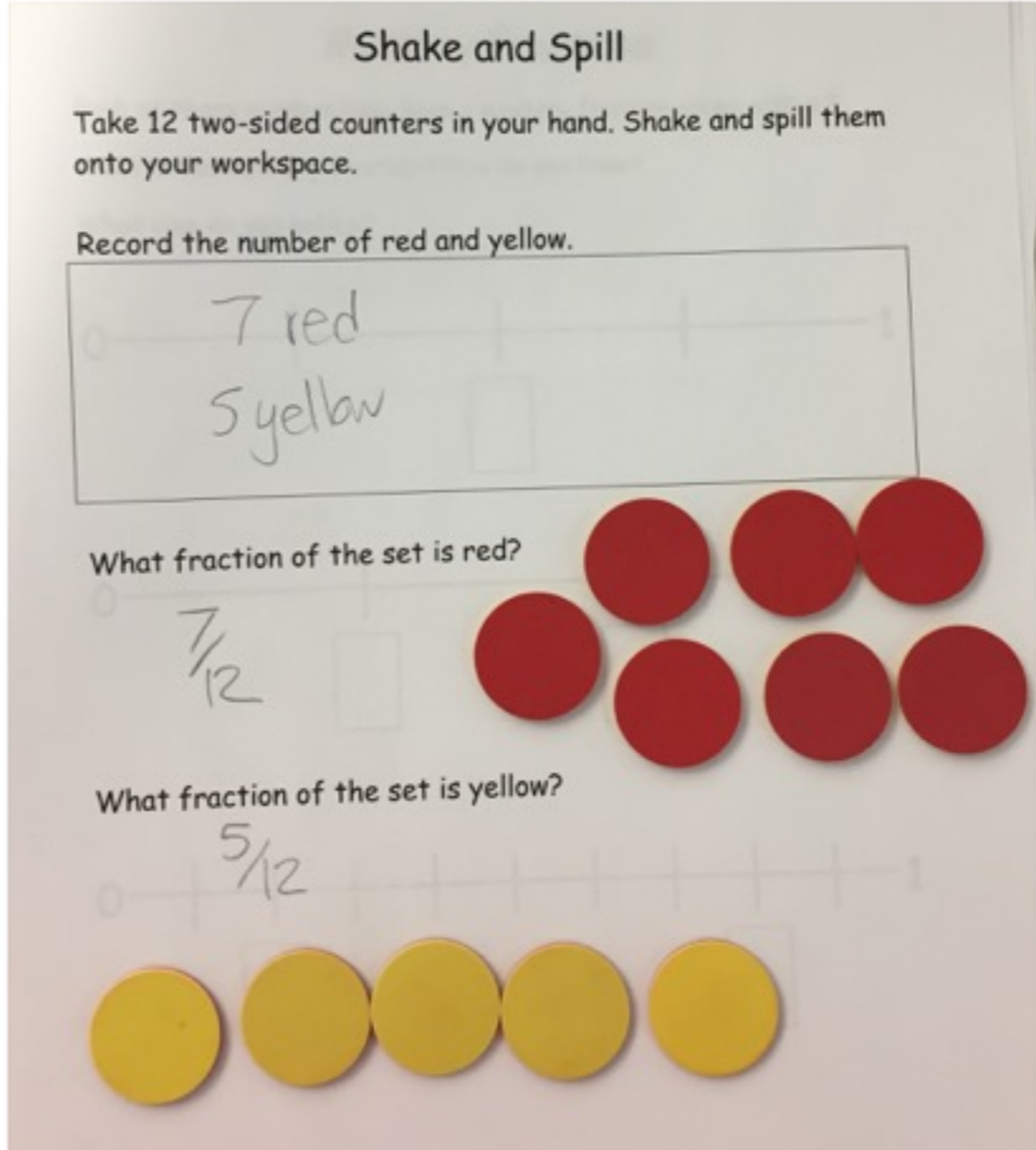
7 red
5 yellow

What fraction of the set is red?

$\frac{7}{12}$

What fraction of the set is yellow?

$\frac{5}{12}$

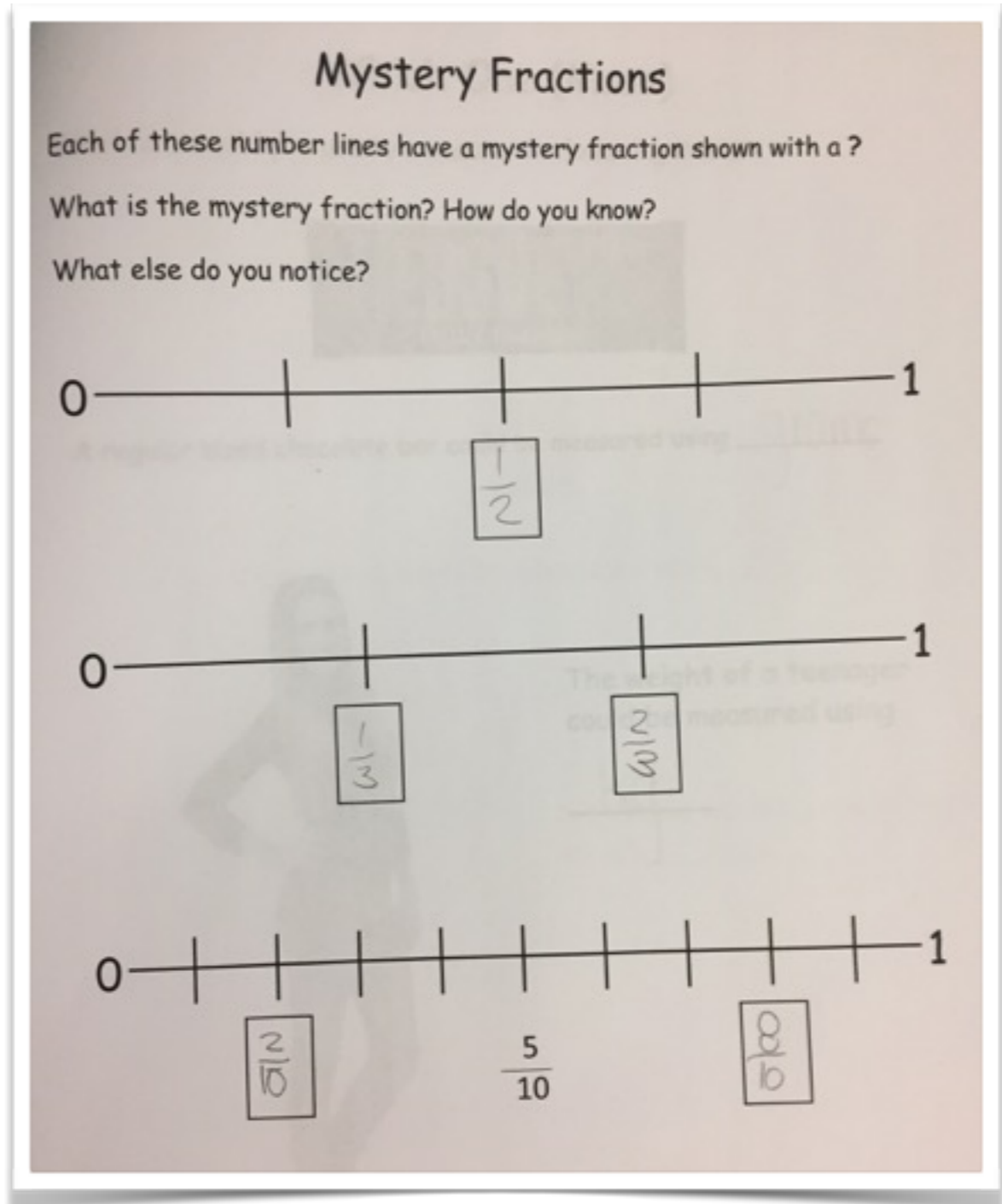


Use Group Photos



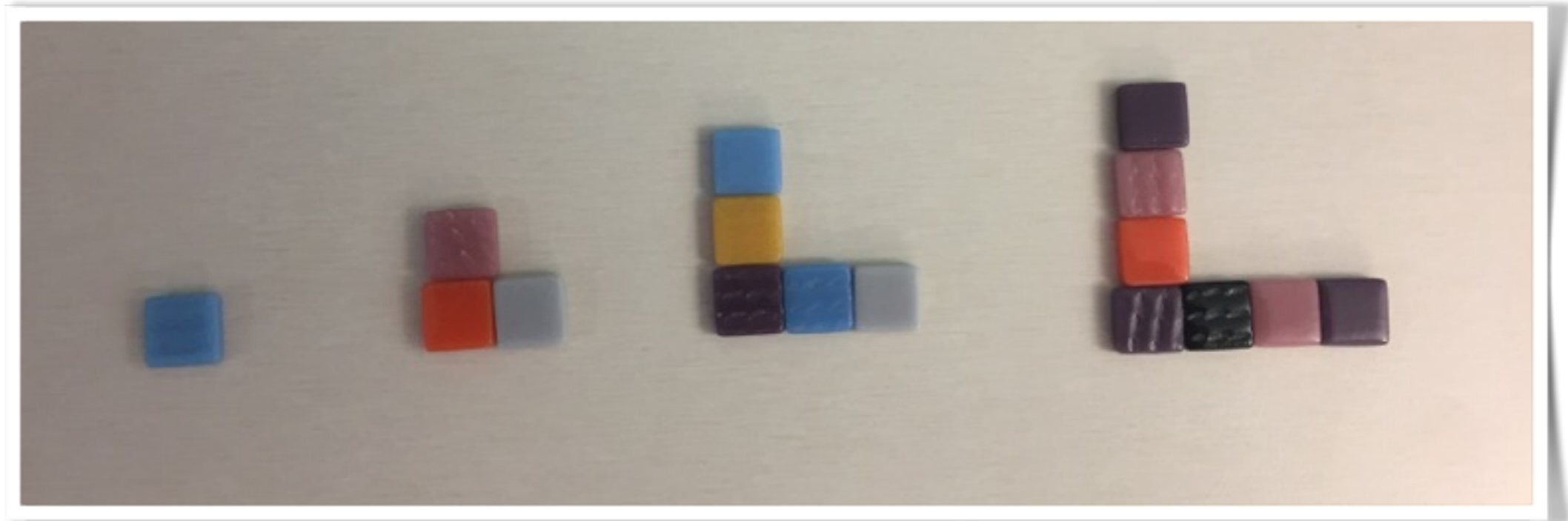
Fractions - linear model

- Does the student understand that fractions can represent equal parts of a line segment?

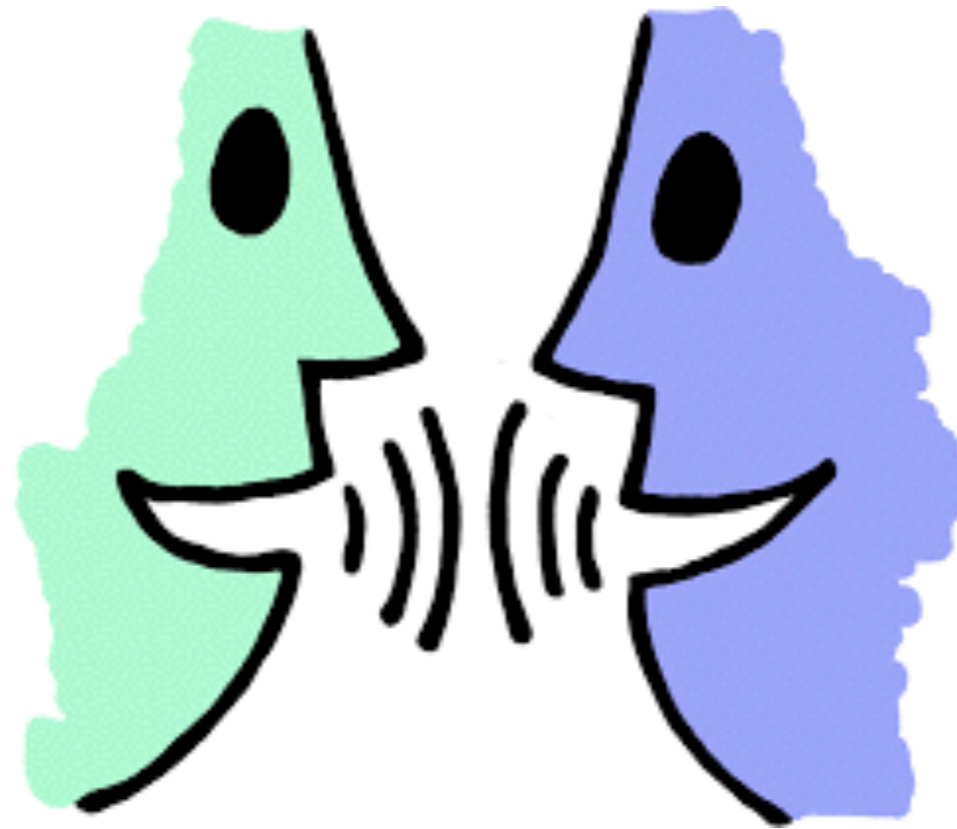


Increasing and Decreasing Patterns

- Can the student create an increasing and decreasing pattern? Are they able to make generalizations about the predictable growth?



Turn and Talk



Can you think of way to revisit patterns throughout the year?

Measurement - Linear

- What unit would you use to measure?

Which One (Linear)

What unit would you use to measure the following items?



An ant could be measured using _____



A pencil could be measured using _____



The distance it would take to drive from Surrey to Richmond or Vancouver could be measured using _____

Measurement - Mass

- What unit would you use to measure?

Which One (Mass)


What unit would you use to measure the following items?

HERSHEY'S
Milk Chocolate

A regular sized chocolate bar could be measured using grams

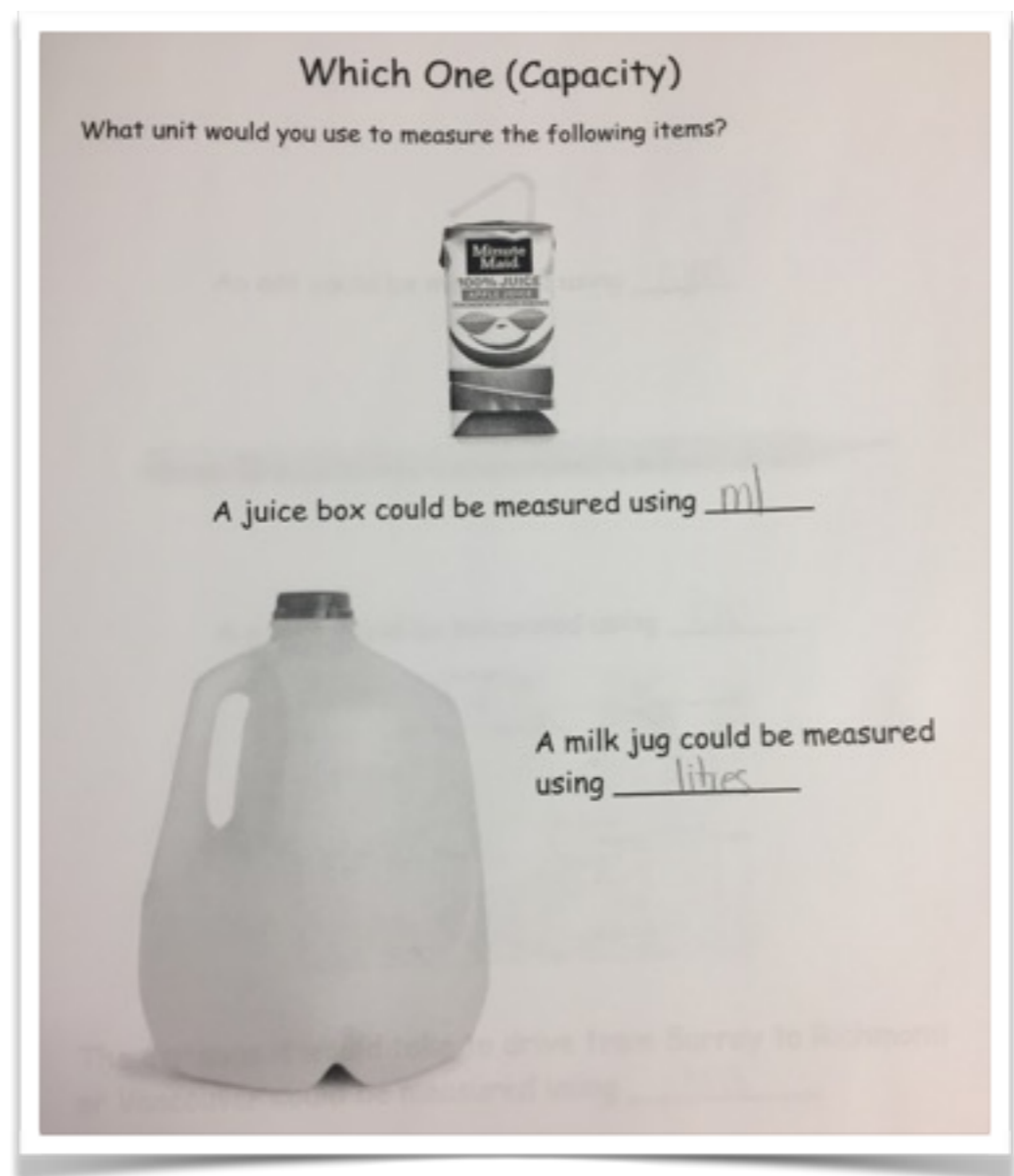
A person could be measured using kg

The weight of a teenager could be measured using kg

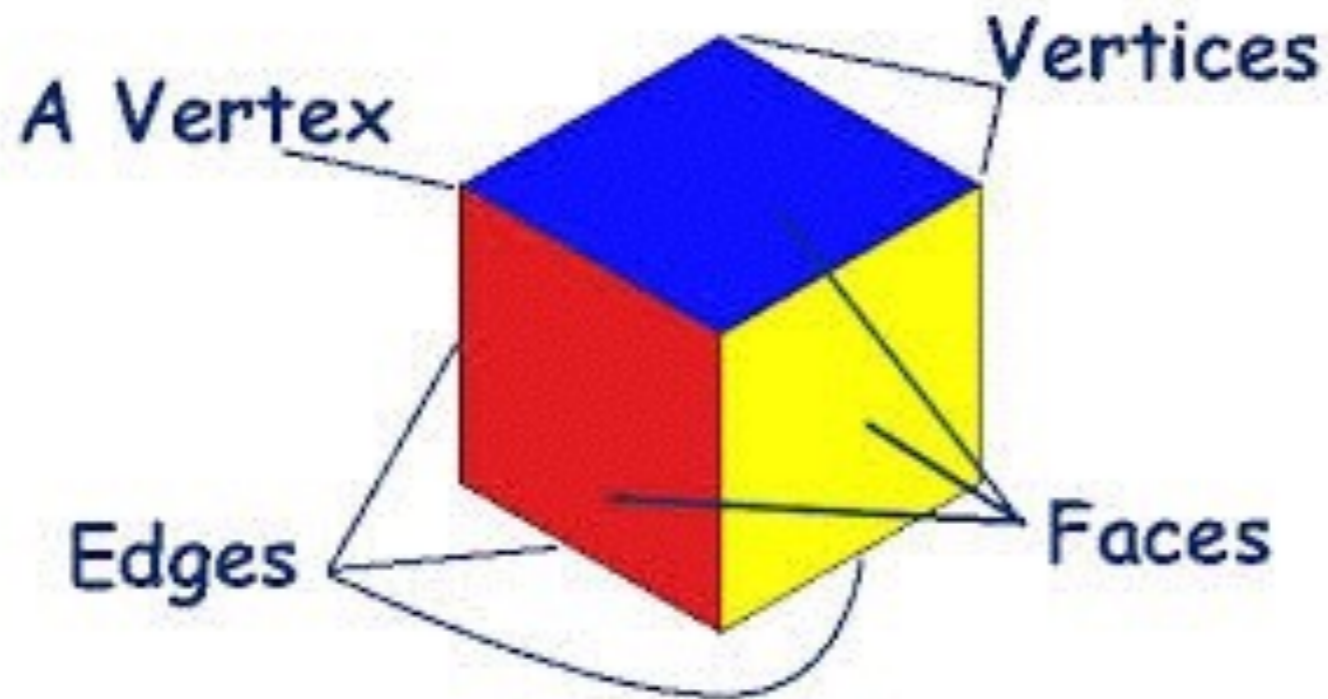


Measurement - Capacity

- What unit would you use to measure?



Geometry - 3D Shapes: Faces, Edges, Vertices



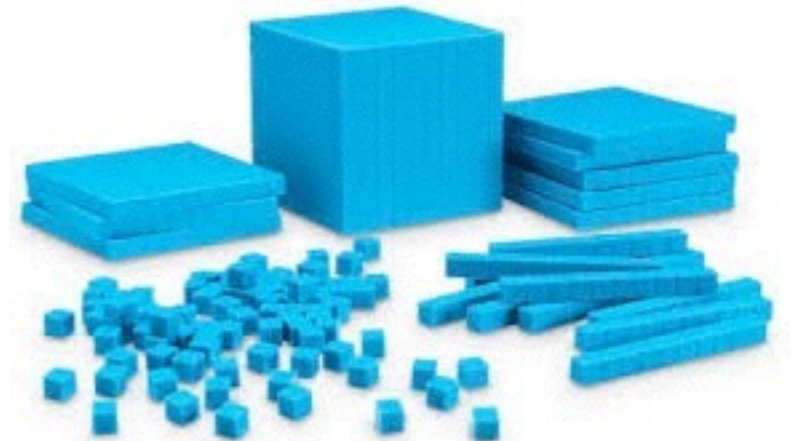
Can the student take a 3D shape and identify the faces, edges, and vertices?

Guess The Shape



Materials Needed

- 48 counters
- base 10 blocks and/or ten frames
- Pattern Blocks
- Materials for patterning
- Unifix cubes for problem solving
- Two-sided coloured counters



What's Really Important?

- Rephrase the questions
- Provide response time
- Model for clarification but not teaching
- Give adequate wait time
- Be responsive... Move on if it's evident it is a struggle

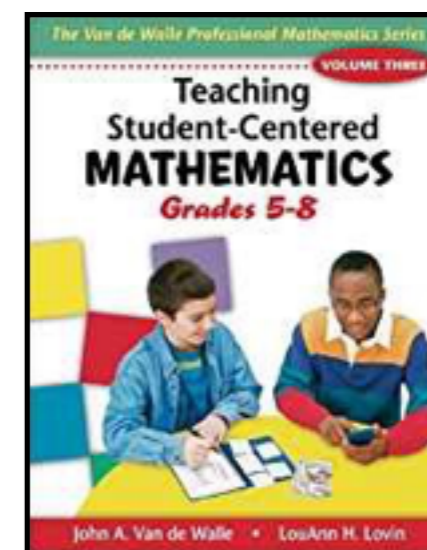
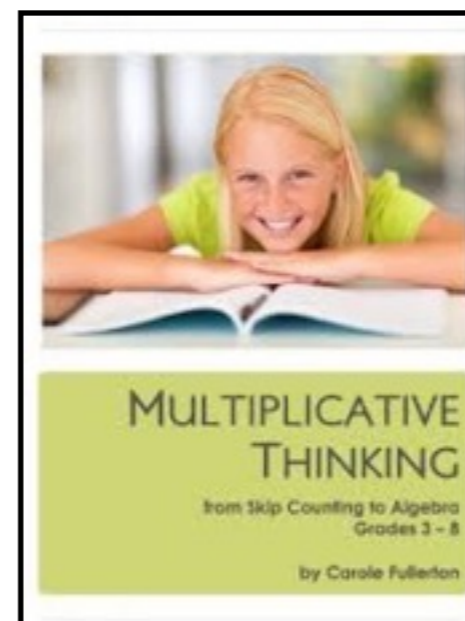
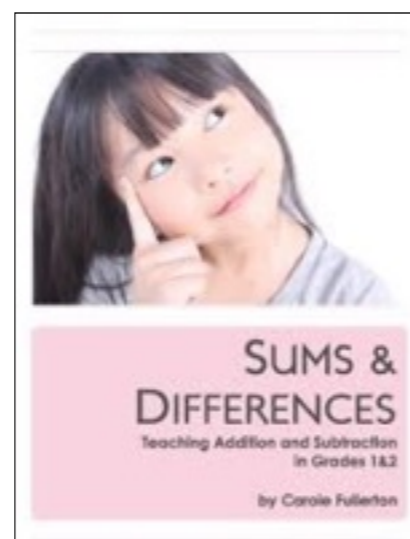
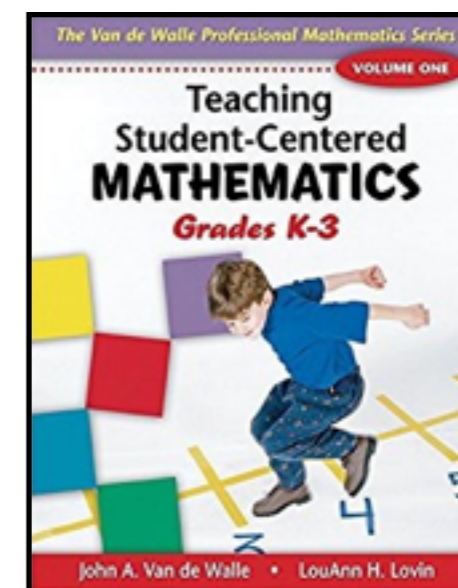
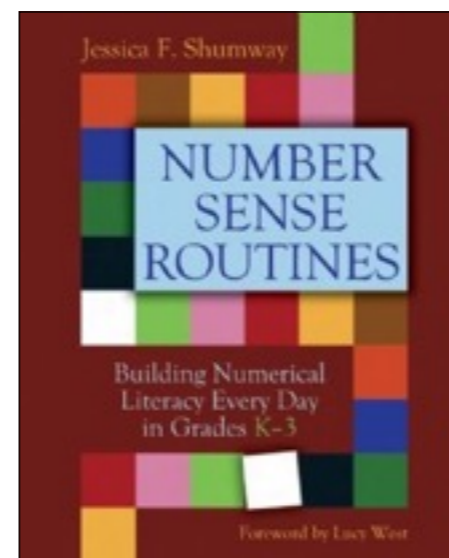
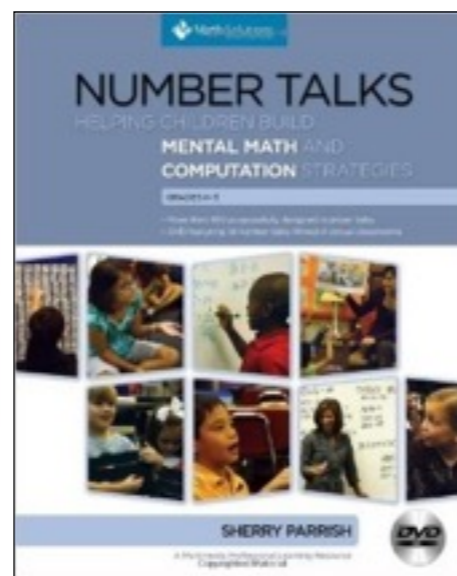
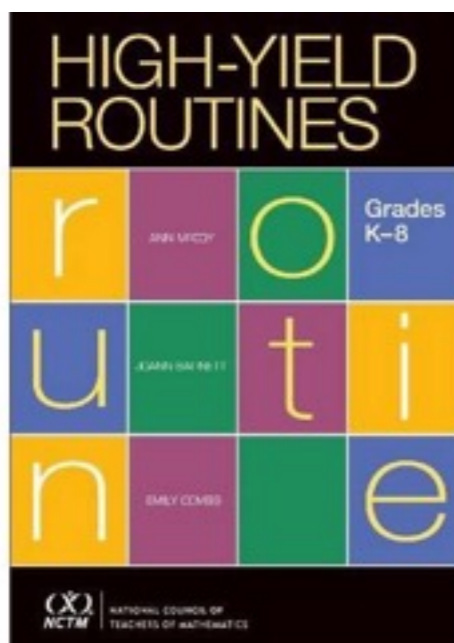


How are you going to start?

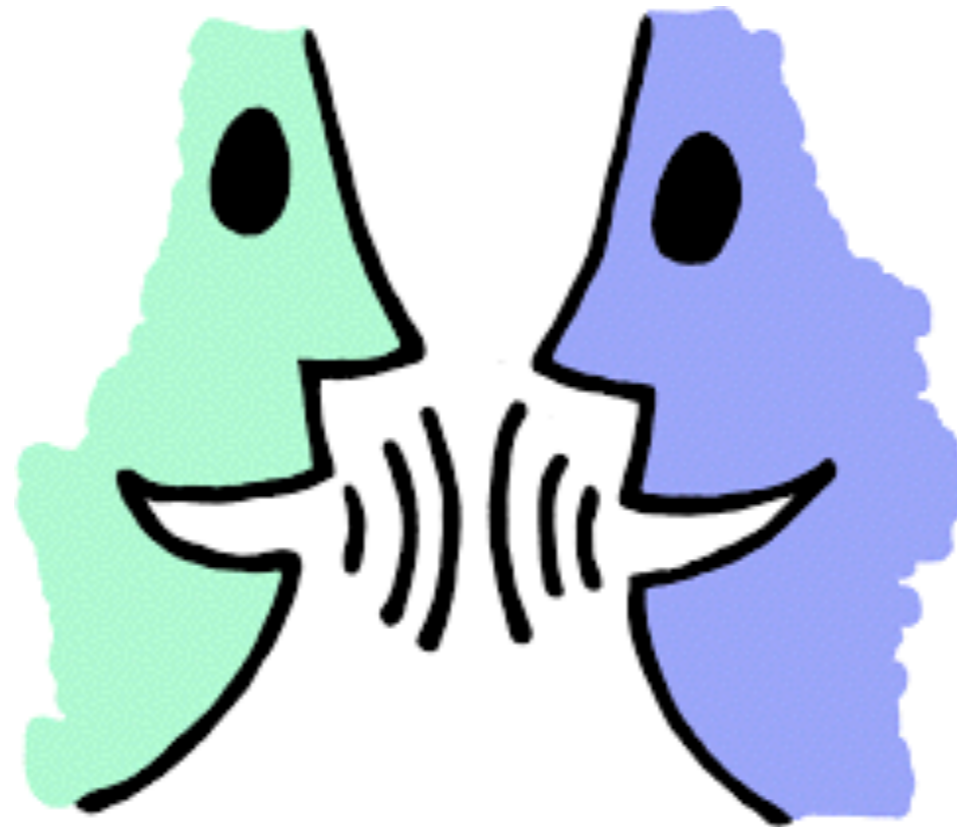
- Choose one of the essential concepts that you are curious what your students know about.
- Choose one student who you would like to find more information about.
 - What do you wonder about?
 - What are their strengths?
 - What are their stretches?
 - How will you support the learning?



Professional Resources



Turn and Talk



Any questions?