What is Sheltered Instruction?

presented by

Lynda Franco

Education Specialist

English as a Second Language,

Bilingual and Foreign Language Instruction

trioE3@hotmail.com

What is Sheltered Instruction?

- Also called:
  - Scaffolded instruction

- Instruction presented in a way that students can COMPREHEND the meaning of the **language** used

Sheltered Instruction……

Typically employs multi-modal techniques

- LOTS of **visuals** (pictures, photos, real objects)
- LOTS of **demonstrations** and **hands on**
- **Music, chants, rhythms** (accompanied by VISUALS showing meaning of words)
- **CONCRETE** examples
- **ORAL/AURAL** before print

Always used in ways that SHOW the meaning of the language being used to support comprehension

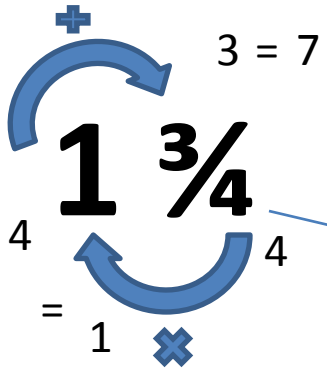
Guidance from NCTM says…

Math should no longer be presented to students as a mere manipulation of numbers and symbols.

Teachers have the responsibility to make math comprehensible to students.

For example:

$1\frac{3}{4} \div \frac{1}{2}$



$\frac{7}{4} \div \frac{1}{2} \rightarrow \frac{2}{1}$

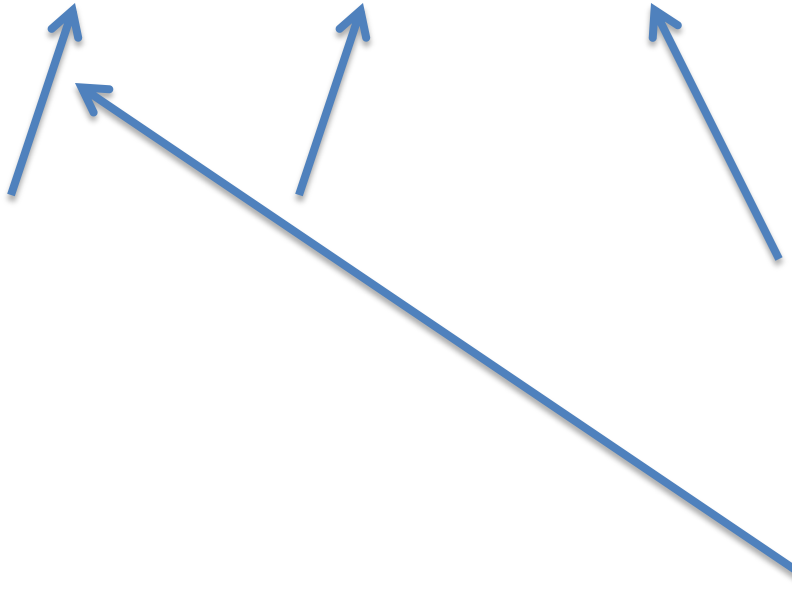
$\frac{7}{4} \times \frac{2}{1} \rightarrow \frac{14}{4} = 3\frac{1}{2}$

$$4\overline{)14} \quad 3\frac{1}{2}$$

$$\frac{-12}{2} \quad \frac{2}{4} = \frac{1}{2}$$

Wait a minute…..

1 ¾ ÷ ½ = 3 ½

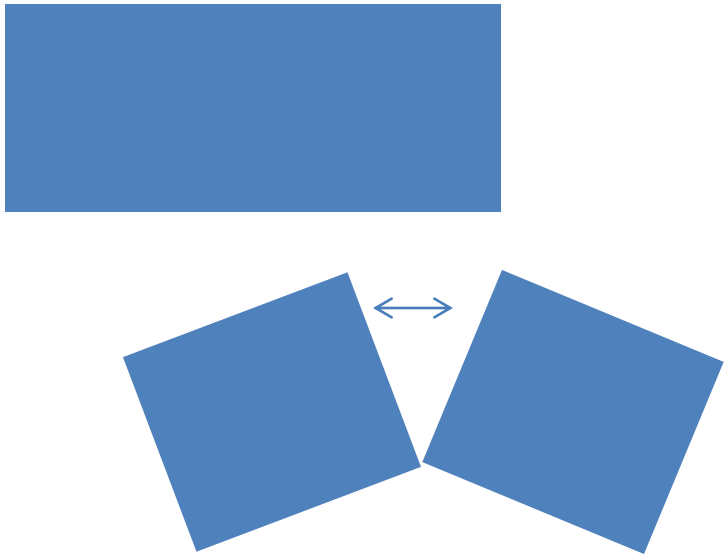


3 ½
BIGGER THAN
1 ¾

I have a candy bar. I want to share with a friend.

I divide it in half.

The piece I end up with is SMALLER than the one I started with.

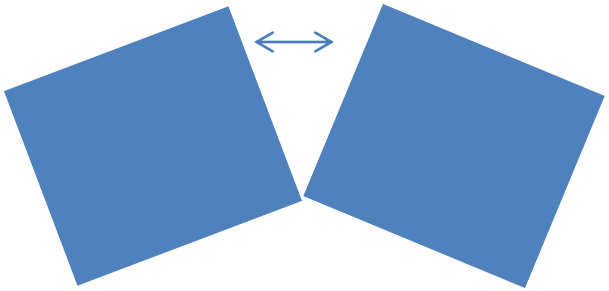


OH….wait…….

I only had 1 piece when I started.

Now I have 2 pieces.

MORE *pieces* than I started with.

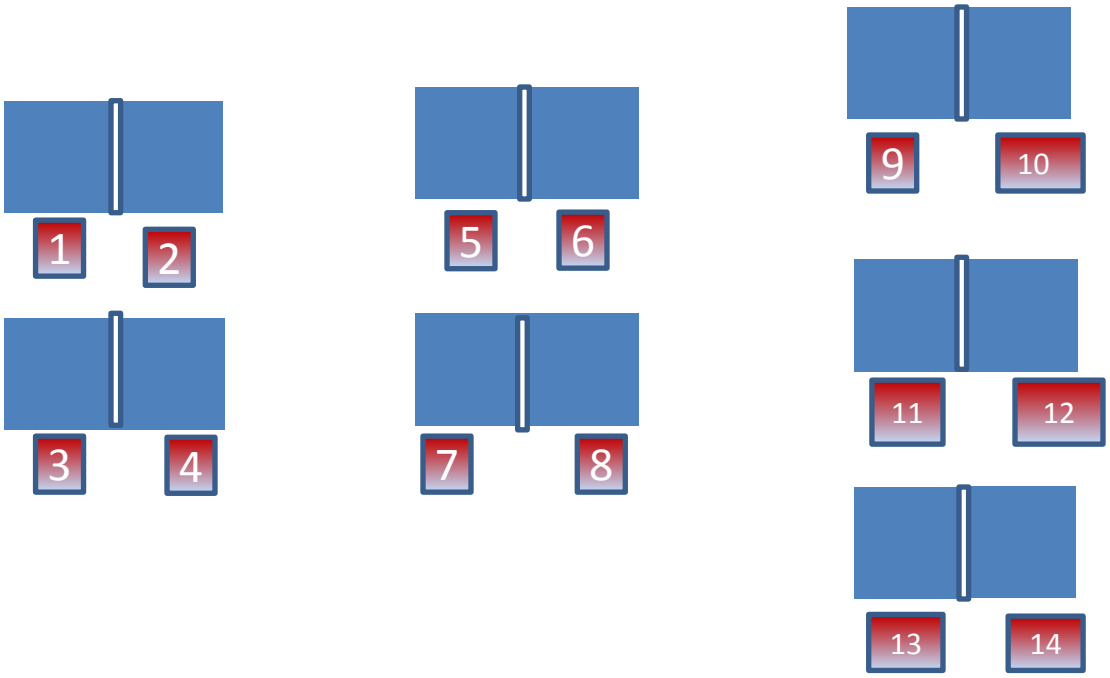


I have 7 candy bars.

I divide them in ½

Now I have 14 pieces.

MORE *pieces* than I started out with.



But---I'm STILL asking the wrong question……

I have 7 candy bars.

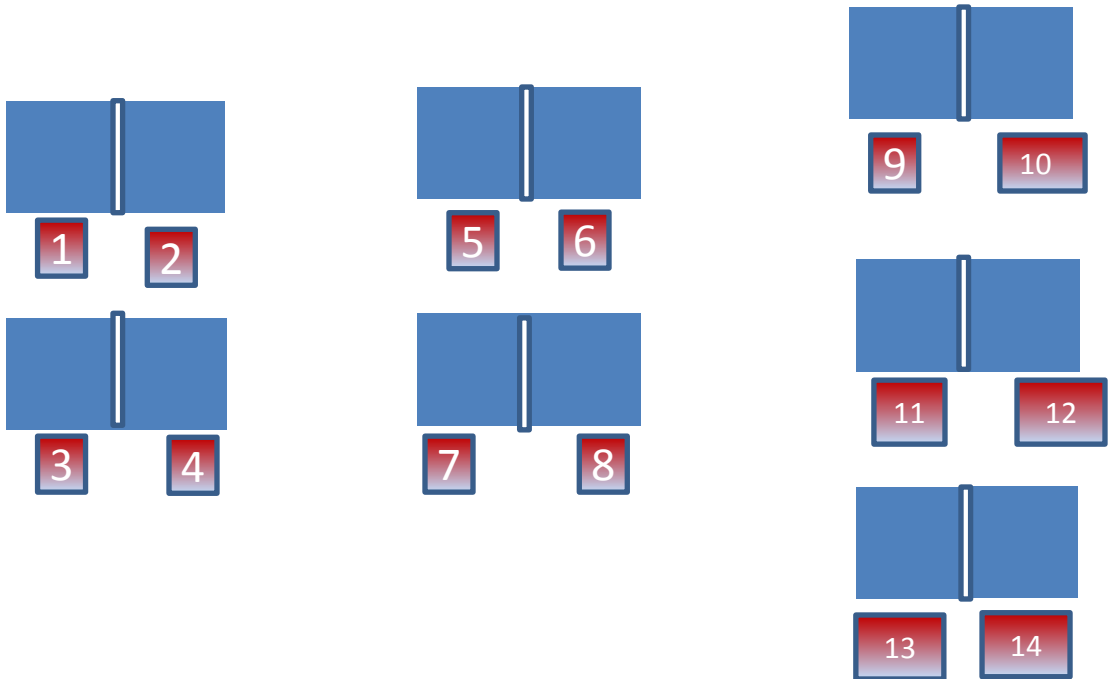
I divide them **in** ½

I'm NOT dividing **in** ½

The RIGHT question is 7 ÷ ½ =

How many ½ ‘s are there in 7 candy bars?

I can see there are 14.

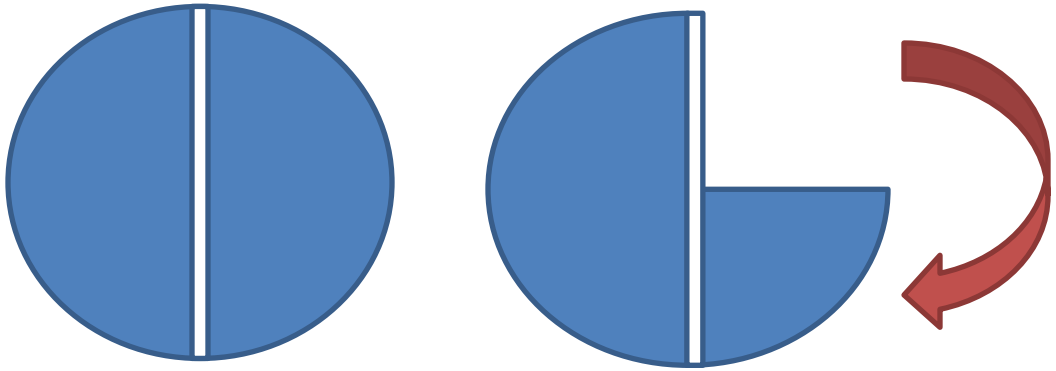


Returning to the original problem:

1 ¾ ÷ ½ =

MEANS

How many ½ ‘s are there in 1 ¾ ?



1 2 3 ½

There is a half of a half here. How many ½ ‘s are there here? ONE HALF of one. (1/2)

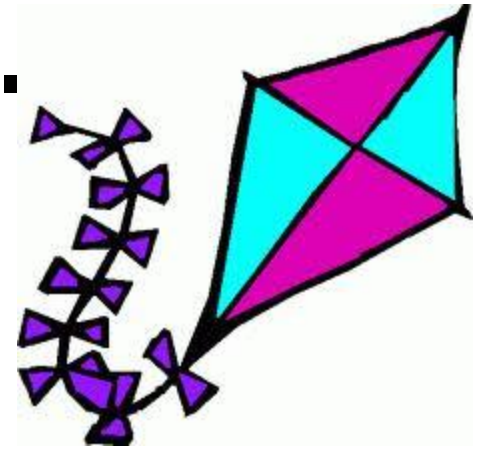
Another example:

Your class is making kites. You have purchased 15 large sheets of paper to make the kites. You need 2/3 of each sheet of paper to make 1 kite. How many kites can you make?

I *simplified* the language from a typical word problem. But will English language learners understand?

To begin learning, let me *show* the students……and have them *do*……

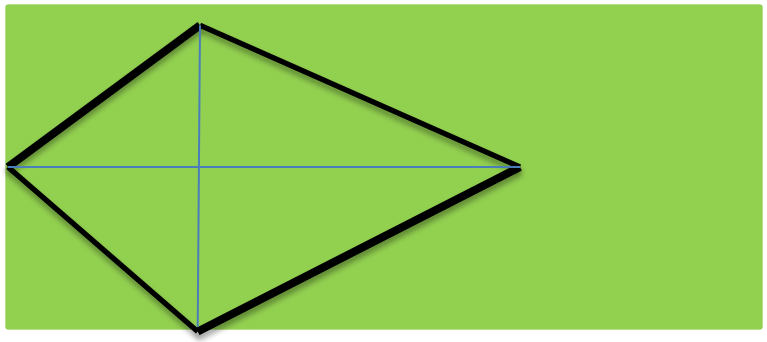
1. Show the students *what a kite is*. (Bring in a real one, or show pictures of different kites.

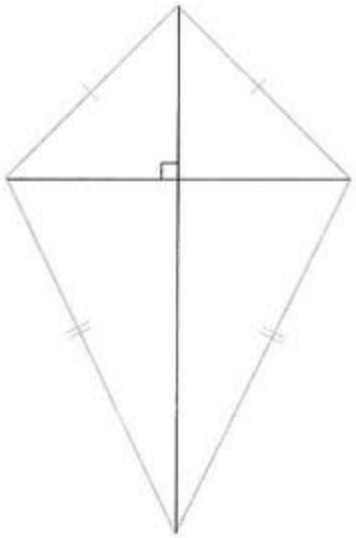


SHOW what you are saying.

2. Show the students that you are going to *make* kites.

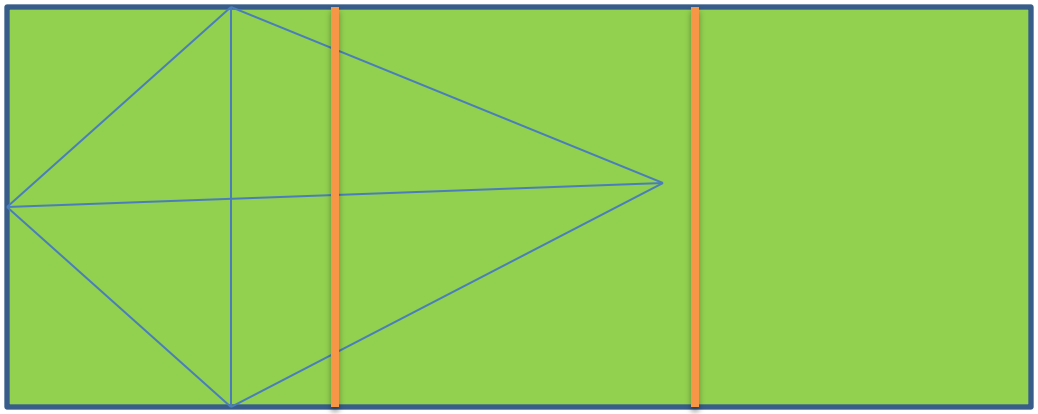
Show them that you have large pieces of paper and a pattern.



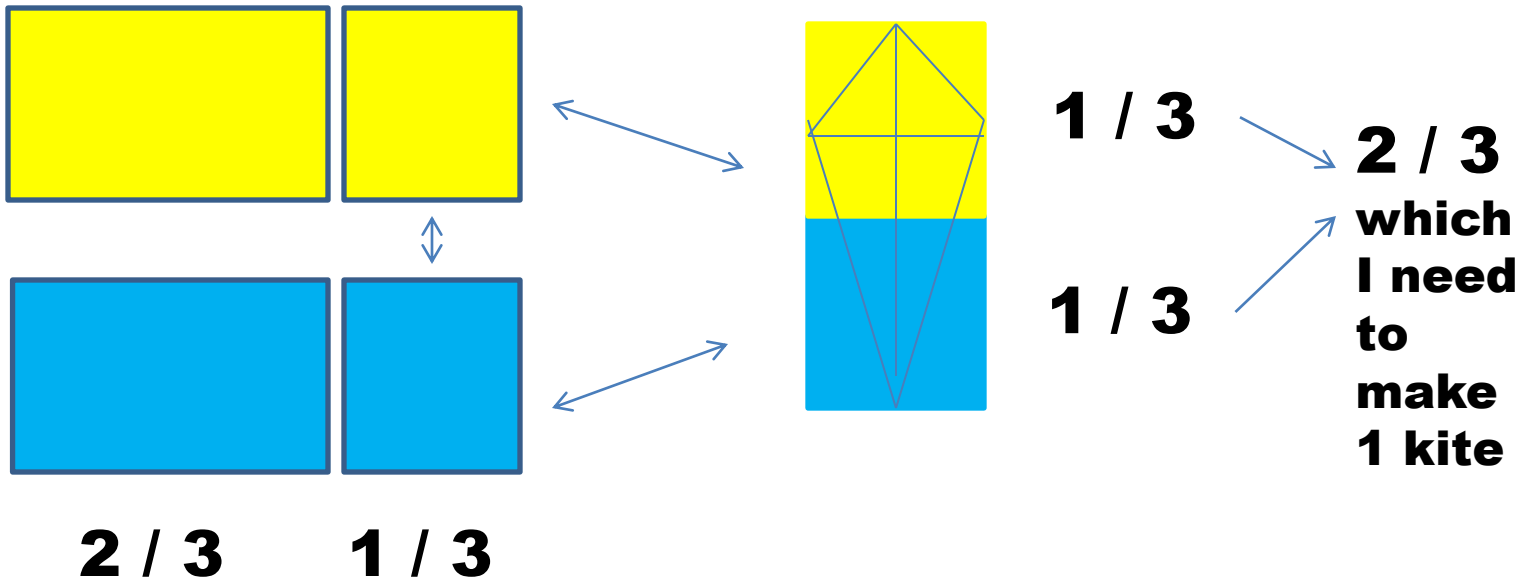


SHOW what you are saying.

As can be seen, you need 2/3 of each piece of paper to make 1 kite.

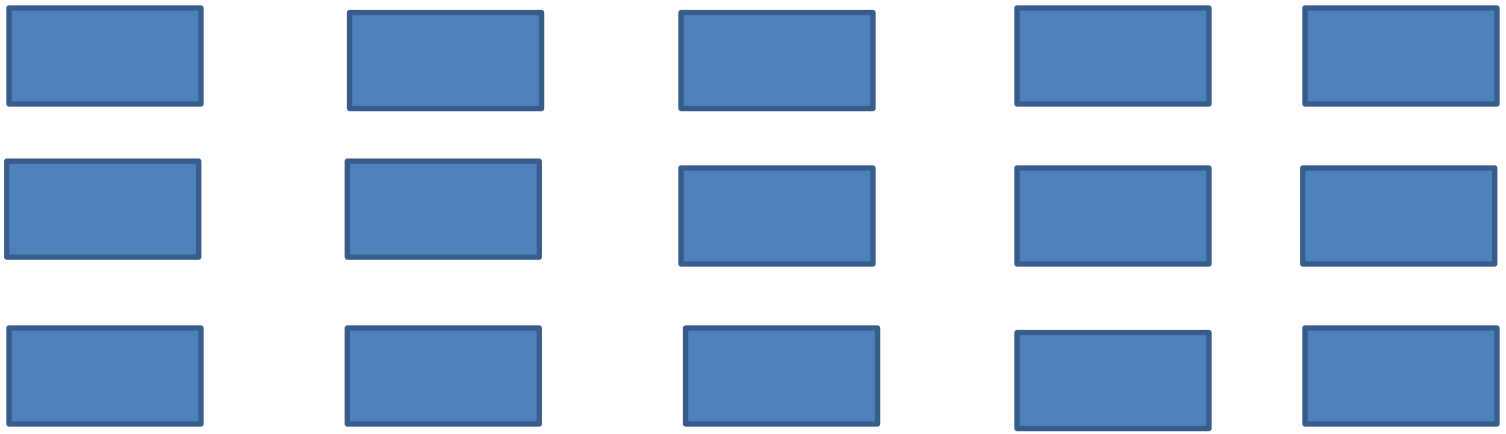


You can put the 1/3 you cut off together and use it to make 1 kite.



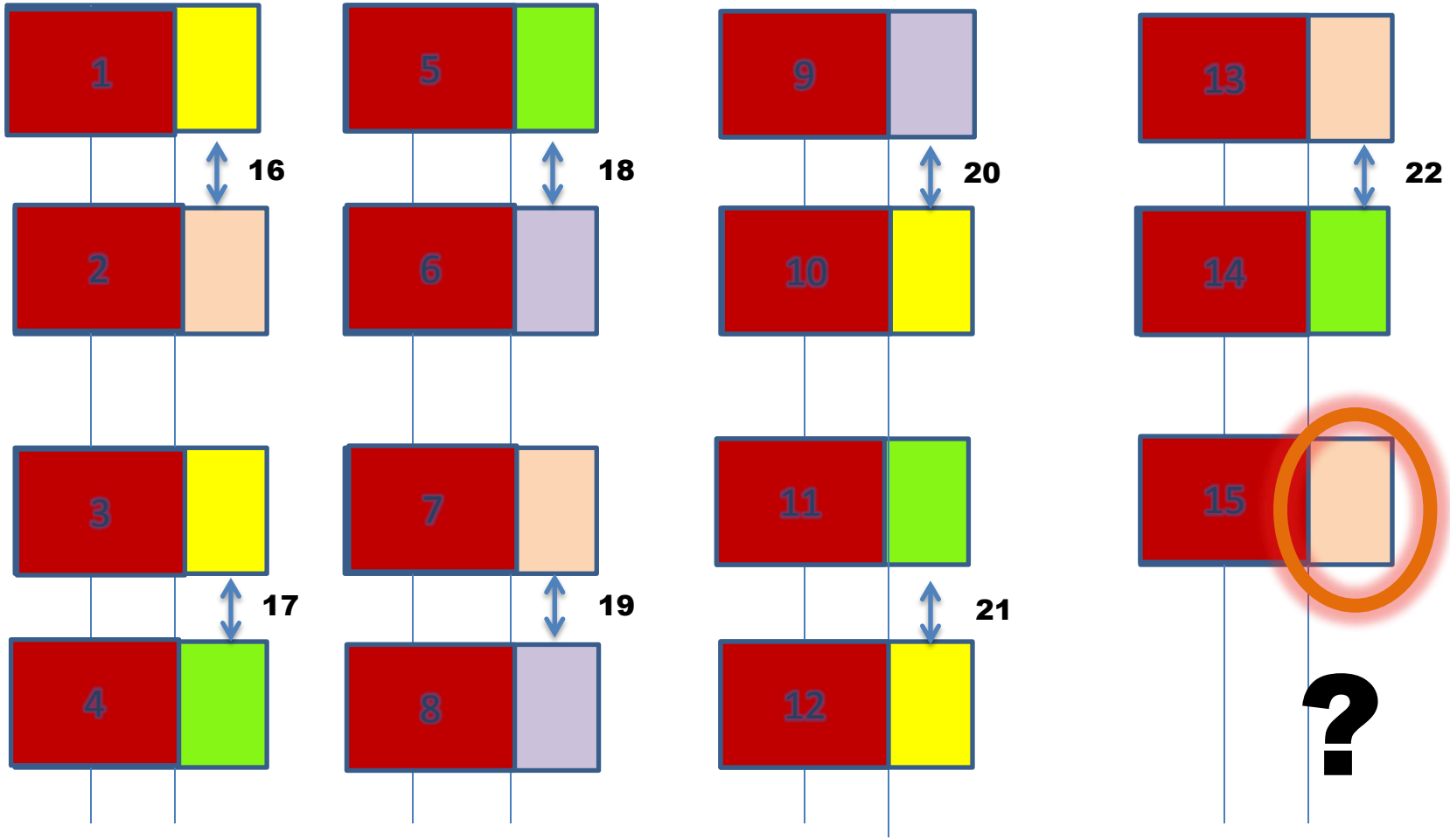
Show them…. and tell them…

Show the students that you have 15 of the large pieces of paper.



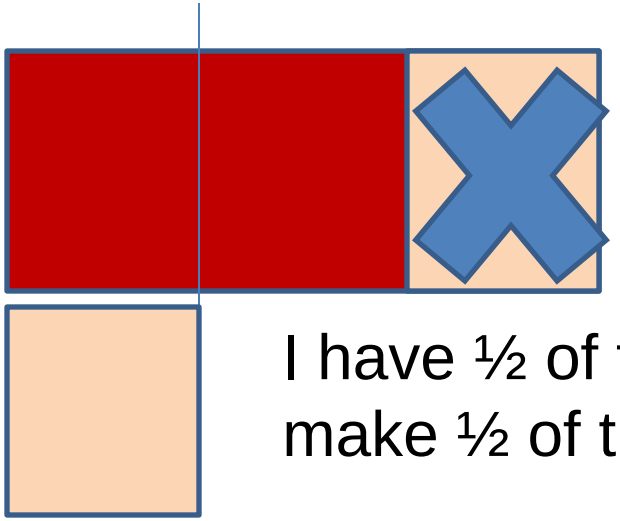
How many kites can you make?

Show them…. and tell them…



Do I have 1/3 left over?

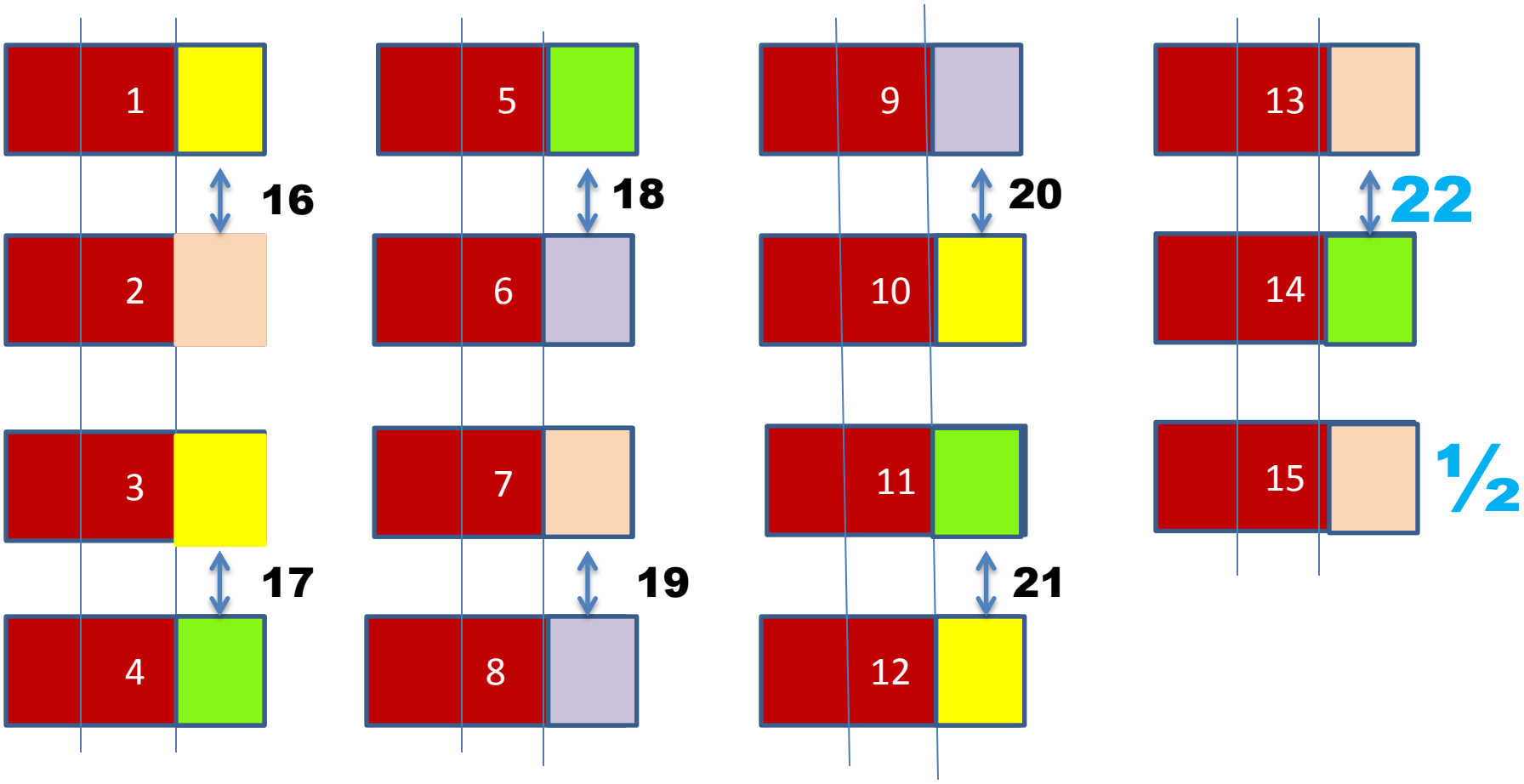
No.



I have ½ of the piece of 2/3 that I need. I can make ½ of that kite. So I have ½ left over.

The problem required 2/3 of a piece of paper for 1 kite. So the question now is…. How much of 2/3 do I have left over?

So the answer is....that I can make 22 1/2 kites.



I have started out learning the new mathematical concept (multiplying fractions) by becoming able to

See it,

Visualize it,

Comprehend it.

AND

I

Understood the language you used

AND therefore,

I learned more language (English)

- Structures

AND

- Vocabulary

Since I'm LIMITED in the English I know, that's an objective of learning for me!

Guidance from NCTM says…

Math should no longer be presented to students as a mere manipulation of numbers and symbols.

Teachers have the responsibility to make math comprehensible to students.

Since I have learned to visualize the concept to solve it, why then should I ALSO learn the calculation process using numbers and symbols?

Math should no longer be presented to students as a mere manipulation of numbers and symbols.

That means I also need to learn to manipulate the numbers and symbols.

WHY do I also have to learn to make the calculations?

Visualizing works fine when it's small numbers…

1 ¾ ÷ ½ 15 ÷ 2/3 etc…..

But

What happens when the numbers are BIGGER or more complex?

$2\frac{11}{16} \div \frac{7}{18}$ $4\frac{5}{24} \div 1\frac{16}{33}$

It's easier, quicker, smarter, to figure these out mathematically. How do I visualize how 16 / 33 fits into 5 / 24????

When it comes time to work with those larger, more complex numbers,

students will have the *concept* **of what they are doing in their heads.**

They will be able to *visualize* **it.**

They understand **(comprehend) what they are doing.**

Why teach the visualization of it first?

Why not teach them to do the calculations (manipulate the numbers and symbols) first and teach them to see what they are doing later?

For the ELL, using the visuals, manipulations, and concrete examples, enhances their comprehension of the English language.

Without those, oral English is just sound and noise.

Written English is just squiggles on the paper.

For the ELL, using the visuals, manipulations, and concrete examples, enhances their comprehension of the English language.

Students comprehend the math

and learn English at the same time.

Then they learn the mathematic calculations to extend the concept.

Sheltered Instruction

Supports comprehension and learning of the content objective and the language used in the classroom

Many text books do not demonstrate the concepts of math that underlie the manipulation of the numbers and figures.

Many teachers were never taught to think about math that way either.

The HELP Program for math

- **Supports comprehension and learning of the content objective and the language used in the classroom by** *sheltering the instruction* **provided to students.**

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