

# Whitfield County Schools

## Building Number Sense

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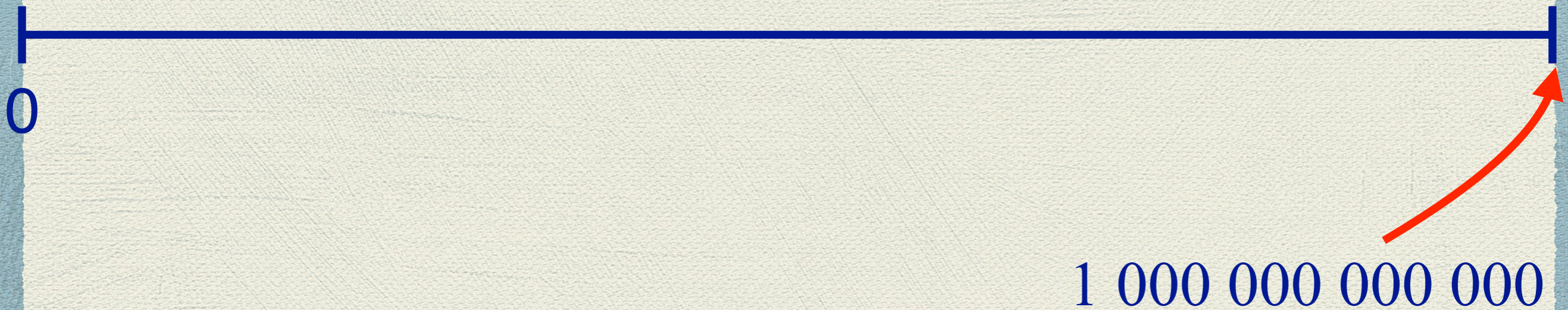
What's your entrance music as you take the mound?



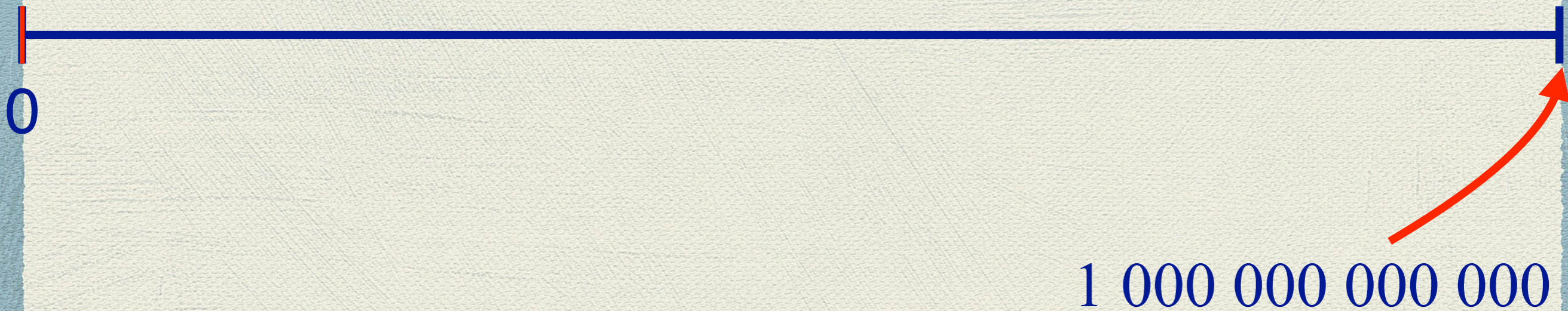
# Number Sense...

- What is it?
- How do you get it?
- How do you know when you have it?

# Where is one billion?



# Where is one billion?



1

10

100



x 1000

thousand

1000

10000

100000

1000000



x 1000

million

10000000

100000000

1000000000



x 1000

billion

10000000000

100000000000

1000000000000



x 1000

trillion

# Where is one billion?

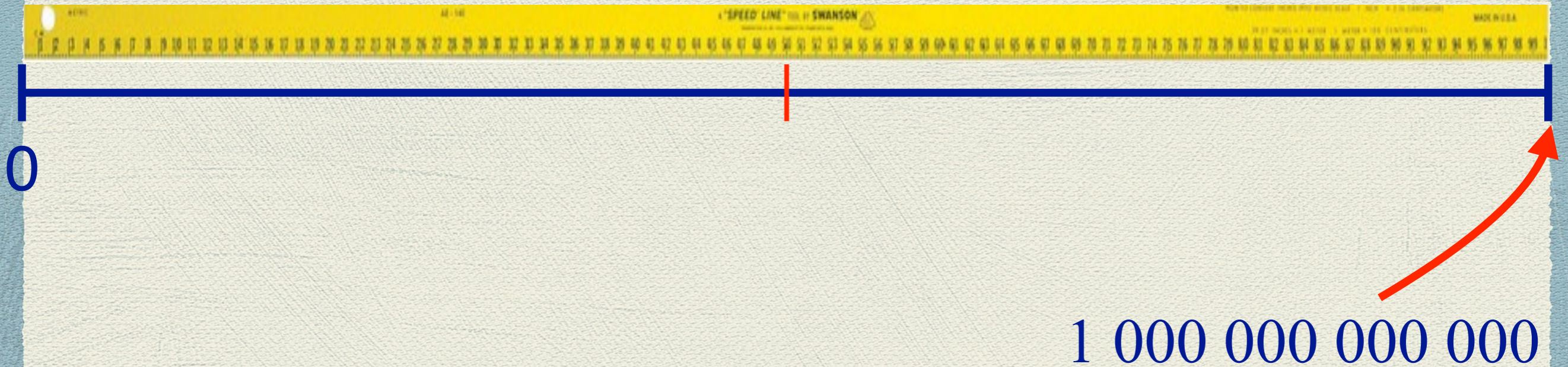


0

1 000 000 000 000



# Where is one billion?



# Where is one billion?



# Where is one billion?



# Where is one billion?



# Where is one billion?



# Where is one billion?



# Where is one billion?



# Where is one billion?



# Where is one billion?

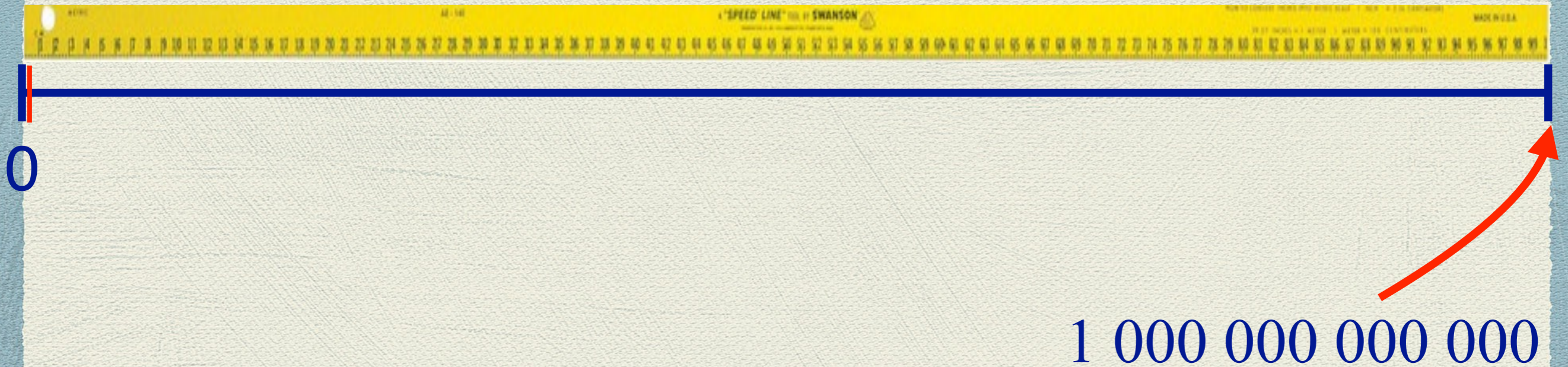


# Where is one billion?

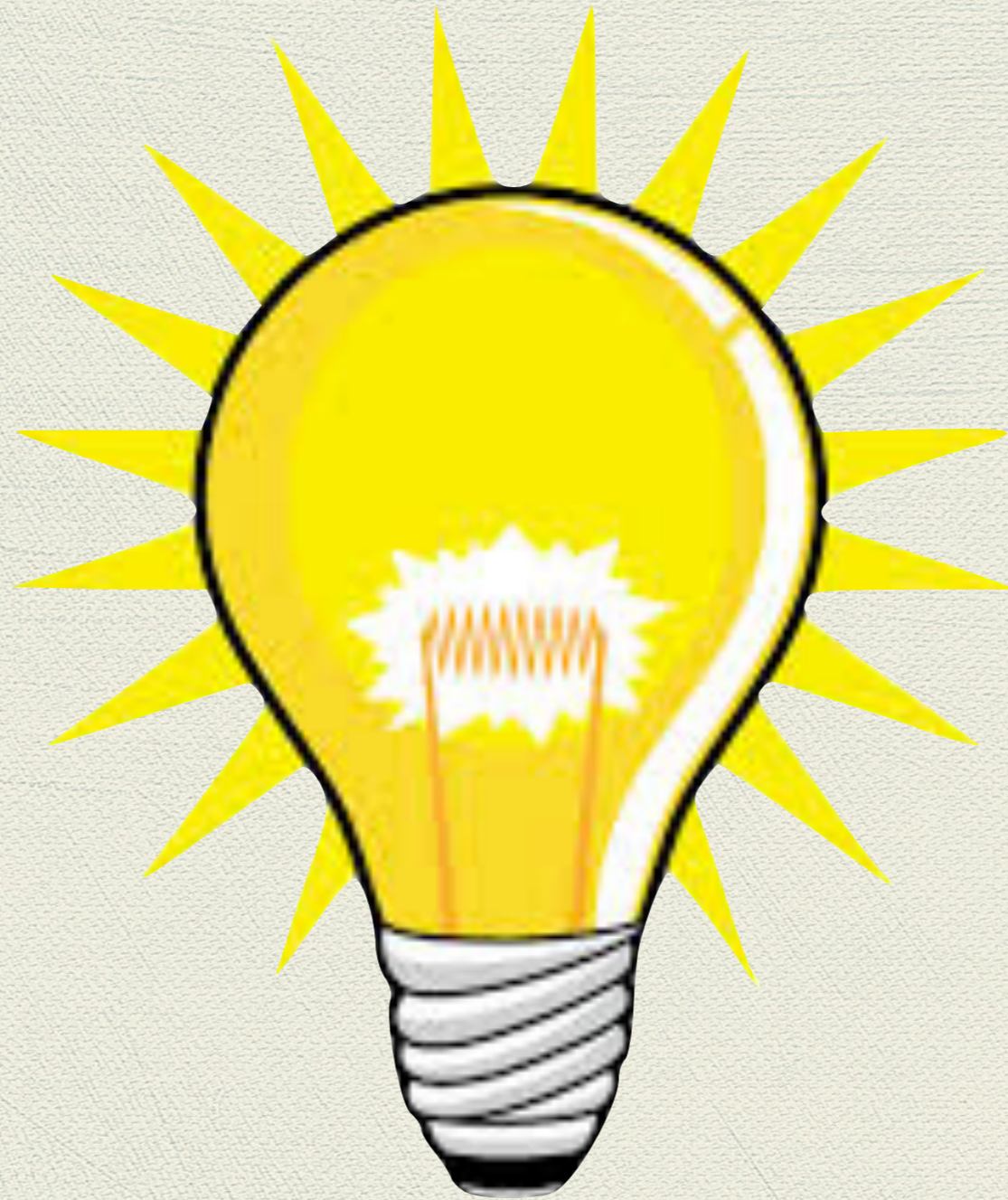


1 000 000 000 000

# Where is one billion?



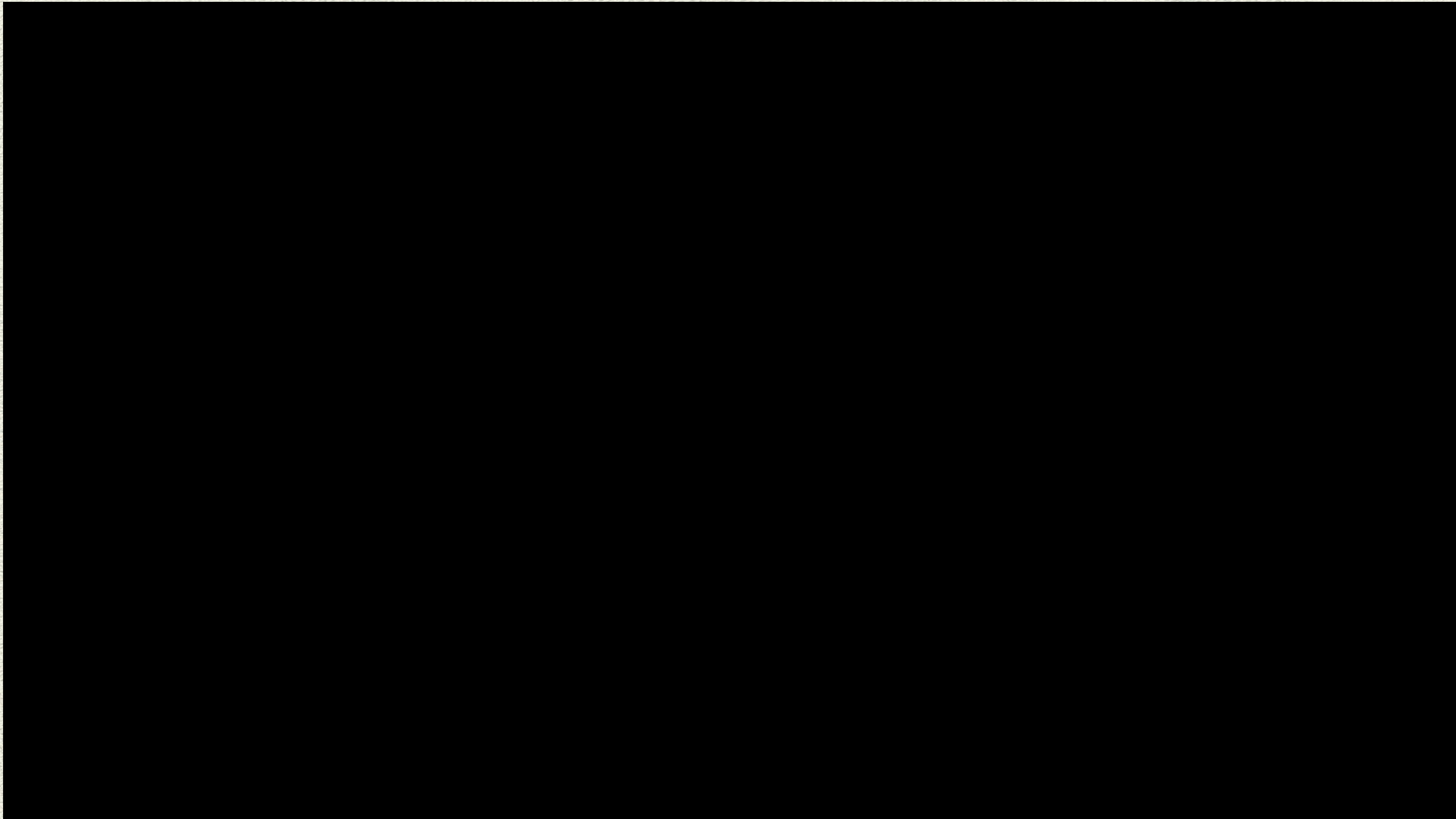
# Number Talks



# Number Talks

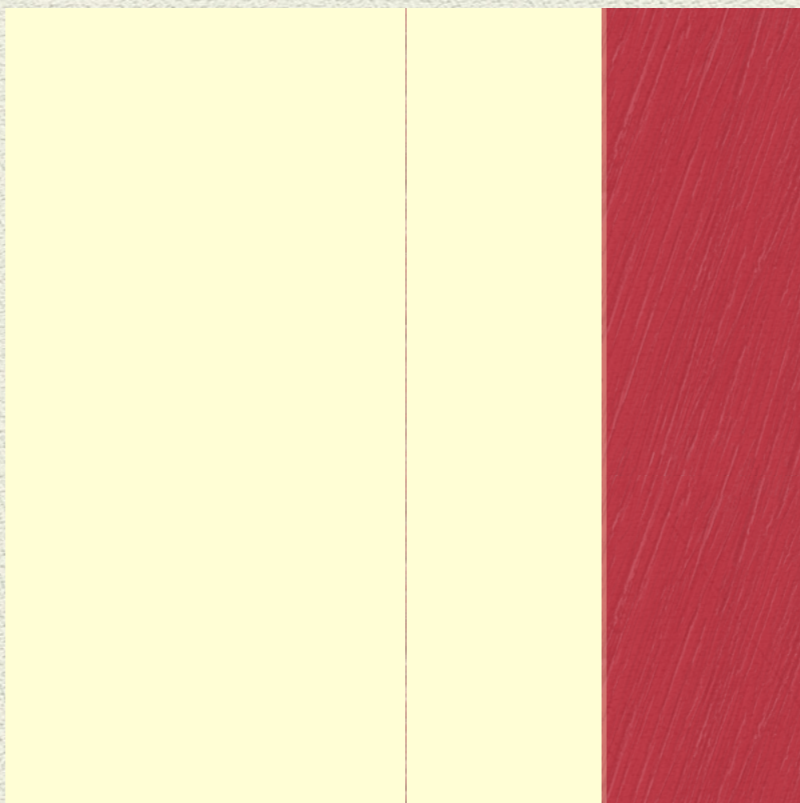
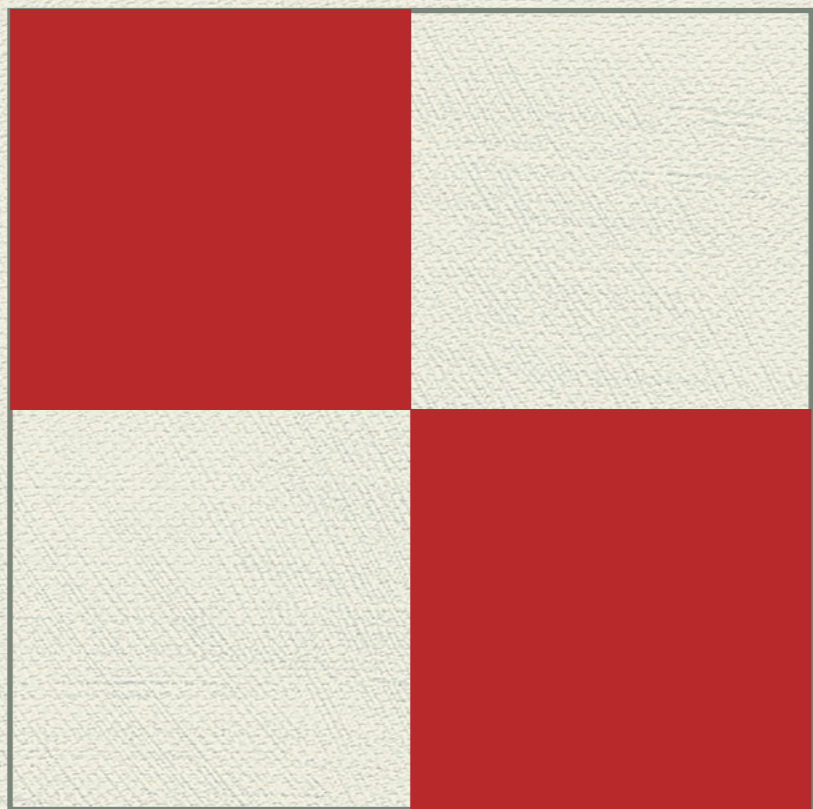


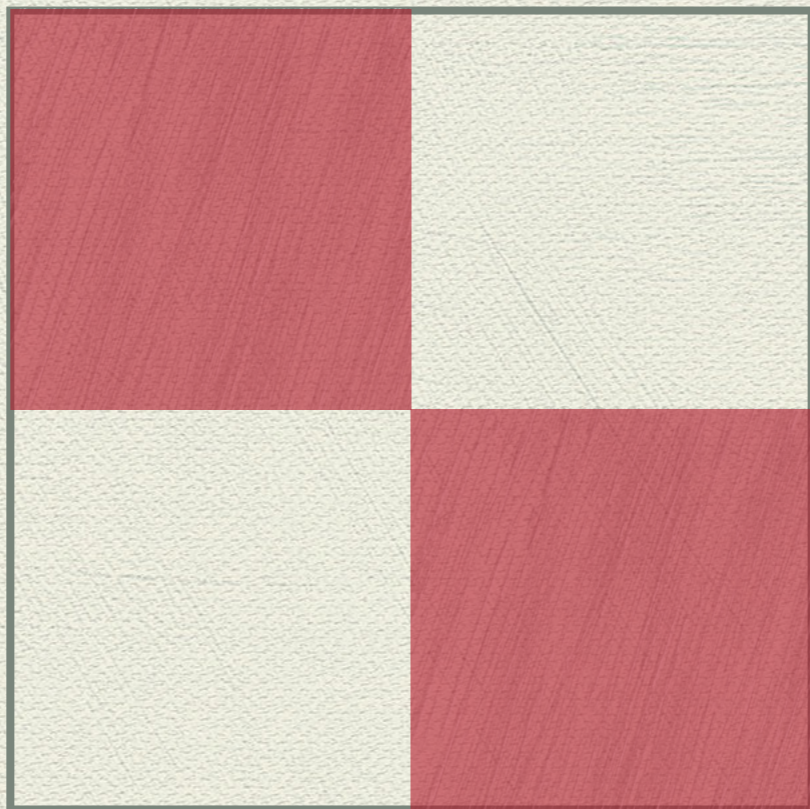
# Number Talks

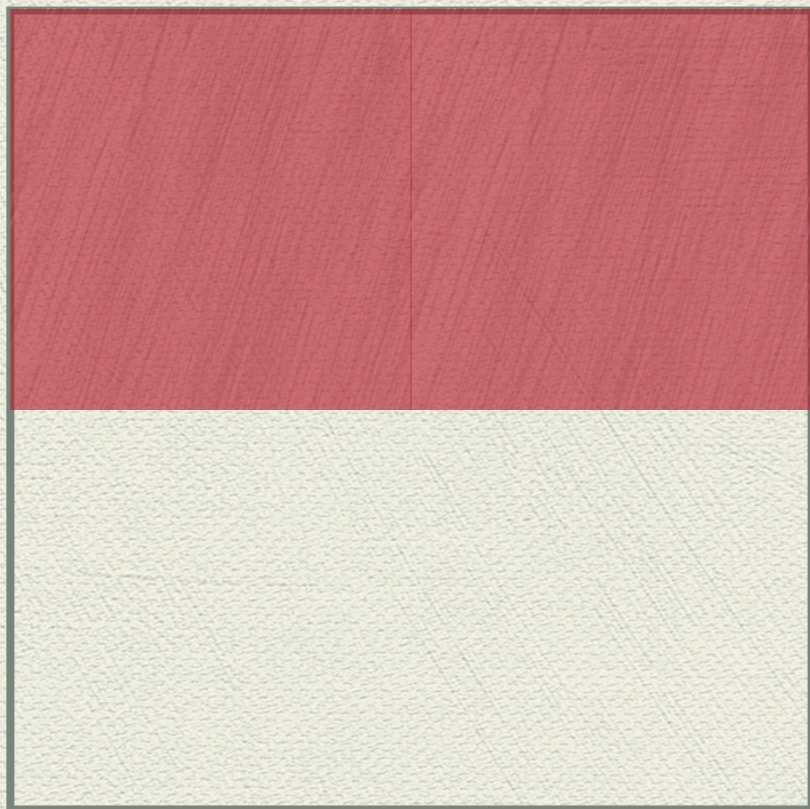


What do you notice?

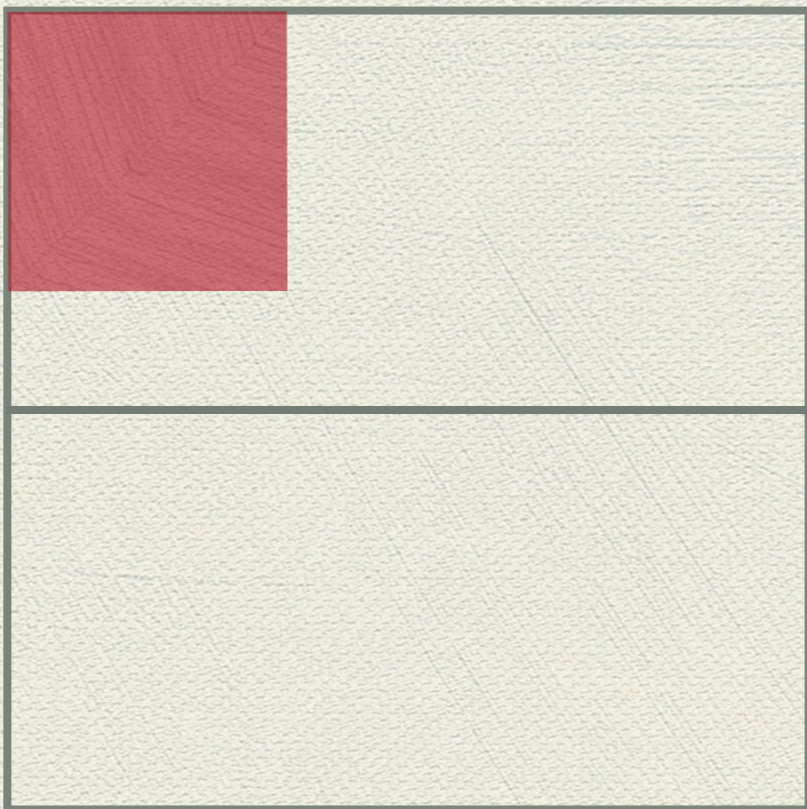
Which of these models represent  $\frac{1}{2}$  of the whole? How do you know?

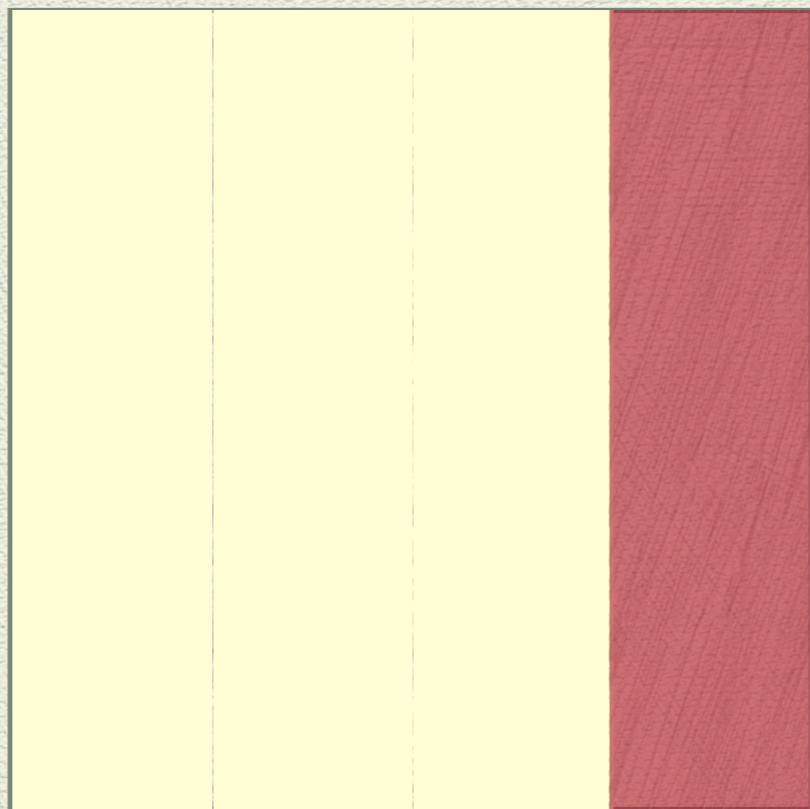














Are the fractions equivalent or is one fraction greater?

$$\frac{4}{10} \quad \frac{7}{12}$$

How do you know?

Are the fractions equivalent or is one fraction greater?

$$\frac{9}{14} \quad \frac{6}{12}$$

How do you know?

Are the fractions equivalent or is one fraction greater?

$$\frac{5}{12} \quad \frac{7}{13}$$

How do you know?

$$\frac{1}{2} + \frac{1}{2}$$

$$\frac{1}{2} + \frac{1}{2}$$

$$\frac{1}{2} + \frac{5}{8}$$

$$\frac{1}{2} + \frac{1}{2}$$

$$\frac{1}{2} + \frac{9}{18}$$

$$\frac{1}{2} + \frac{1}{2}$$

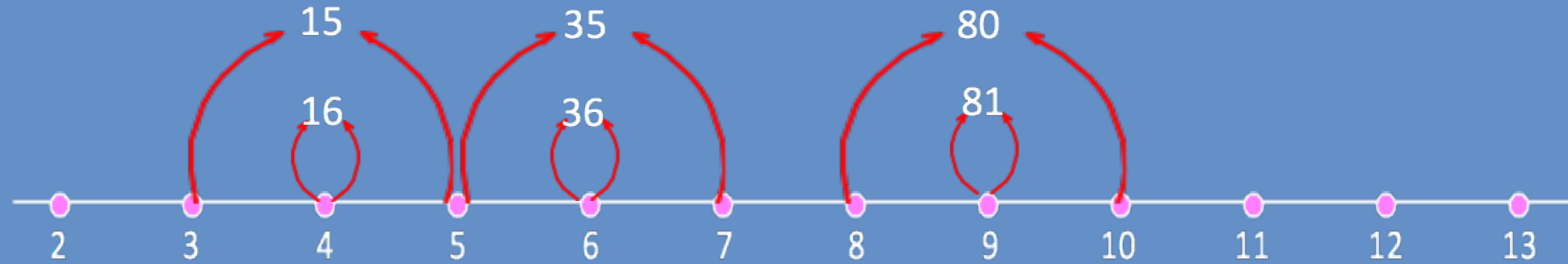
$$\frac{4}{8} + \frac{7}{12}$$

$$\frac{1}{2} + \frac{1}{2}$$

$$\frac{3}{4} + \frac{5}{8}$$

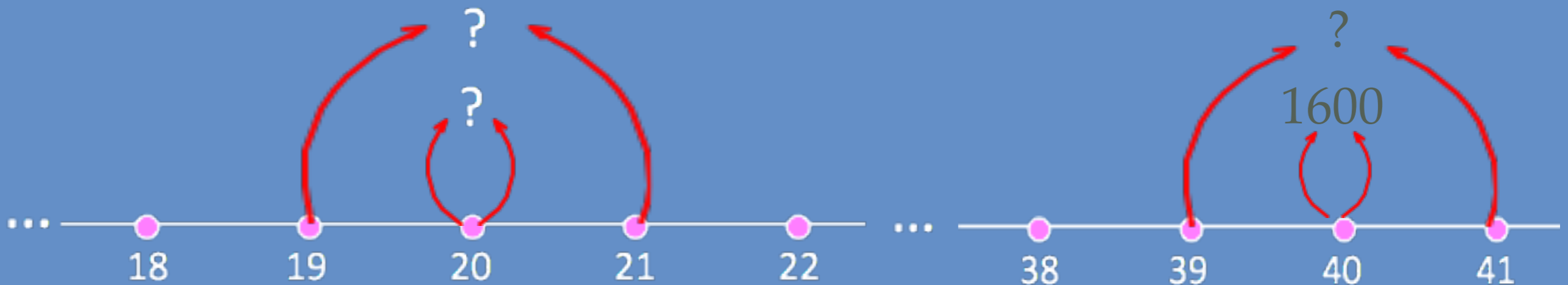
# Teaching Without Talking

*Shhh... Students Thinking*



Wow! Will it always work?

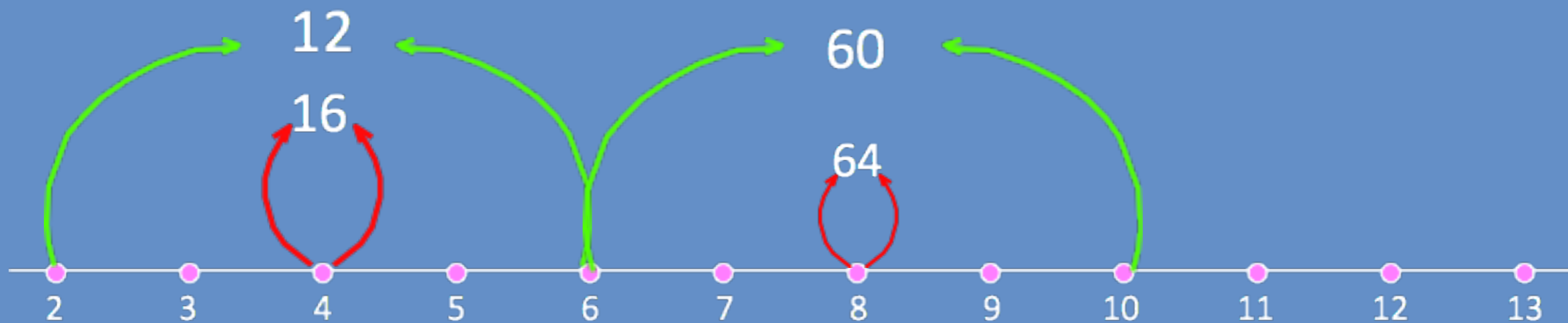
Big numbers?



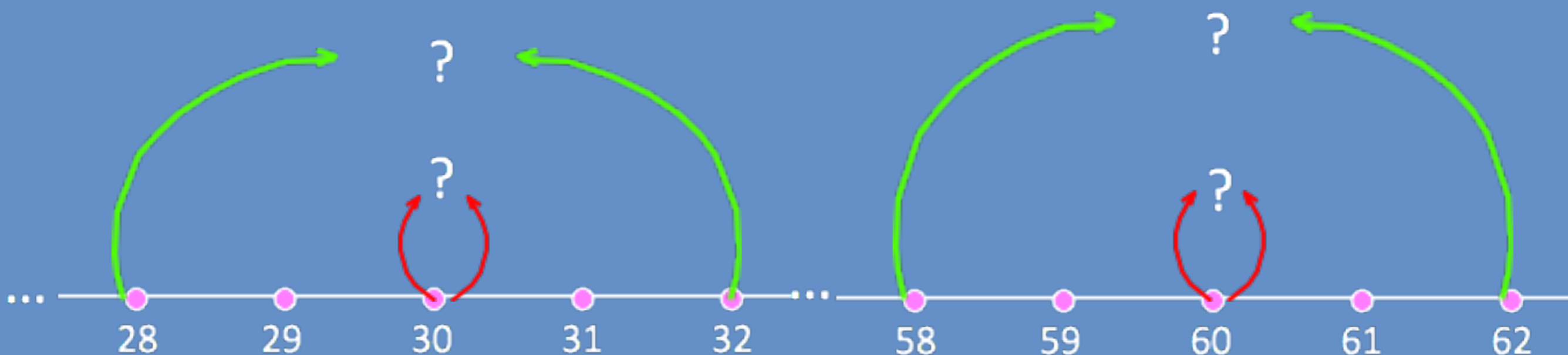
*Source: Paul Goldenberg*

# Teaching Without Talking

*Shhh... Students Thinking*



Again!?! Always? Try some bigger numbers.



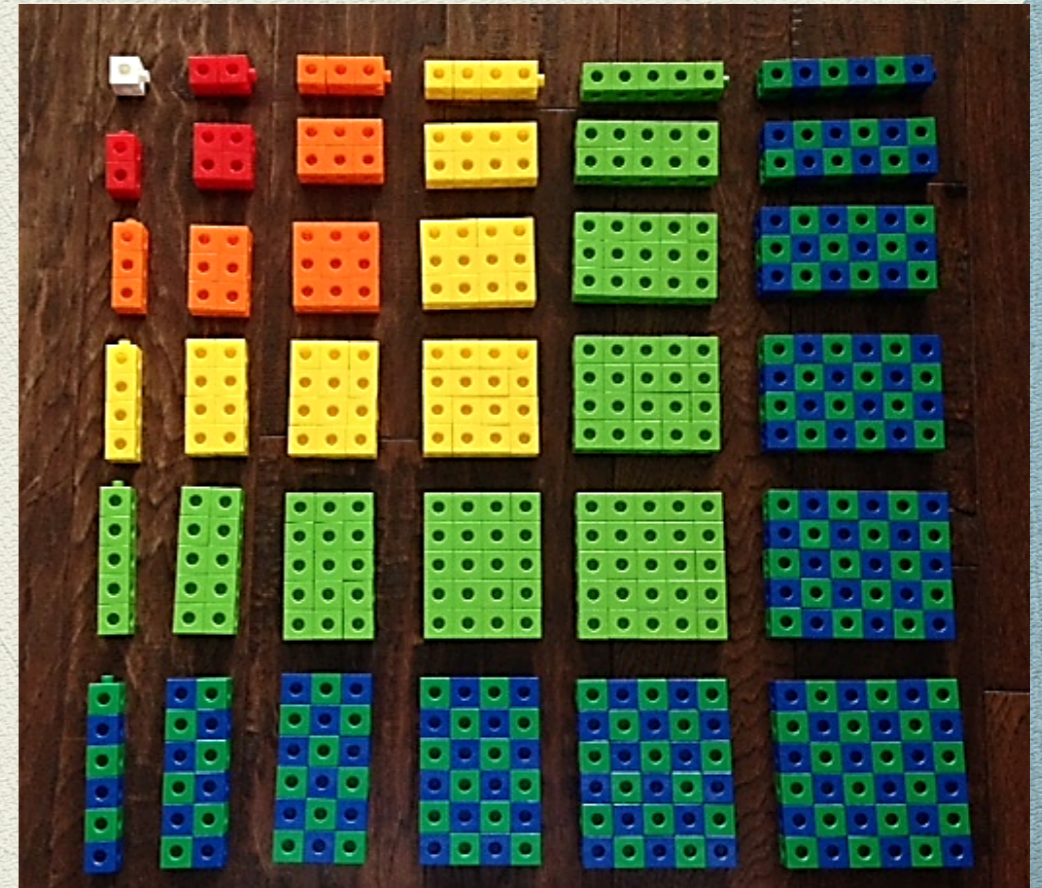
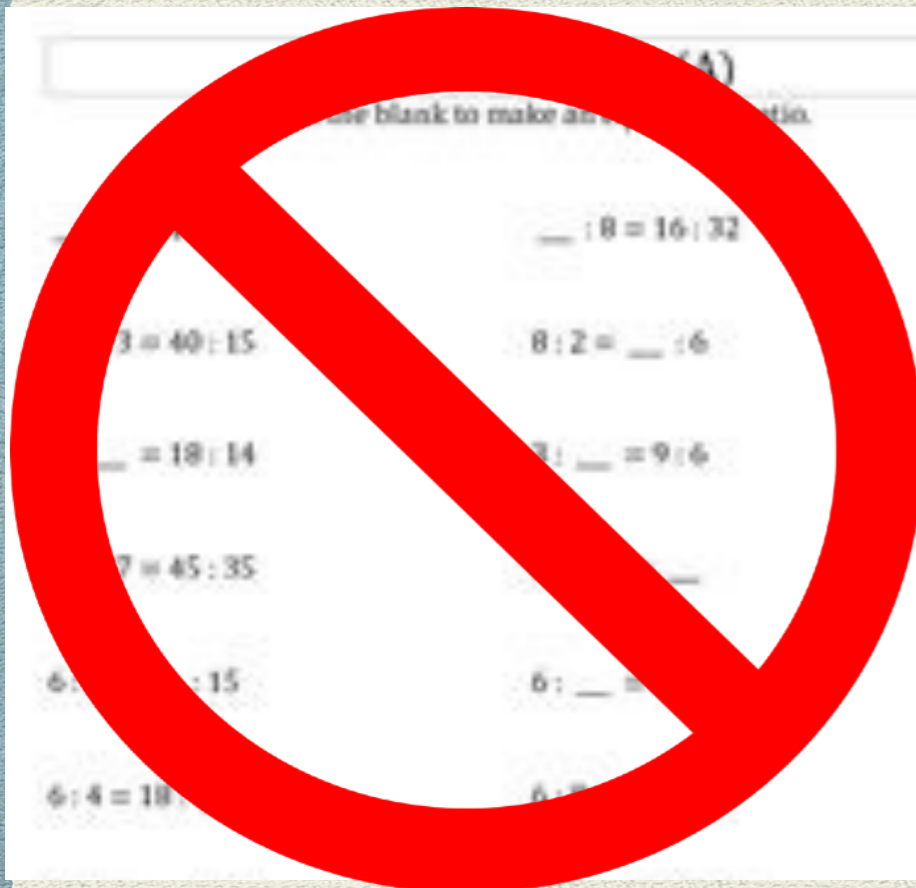
*Source: Paul Goldenberg*

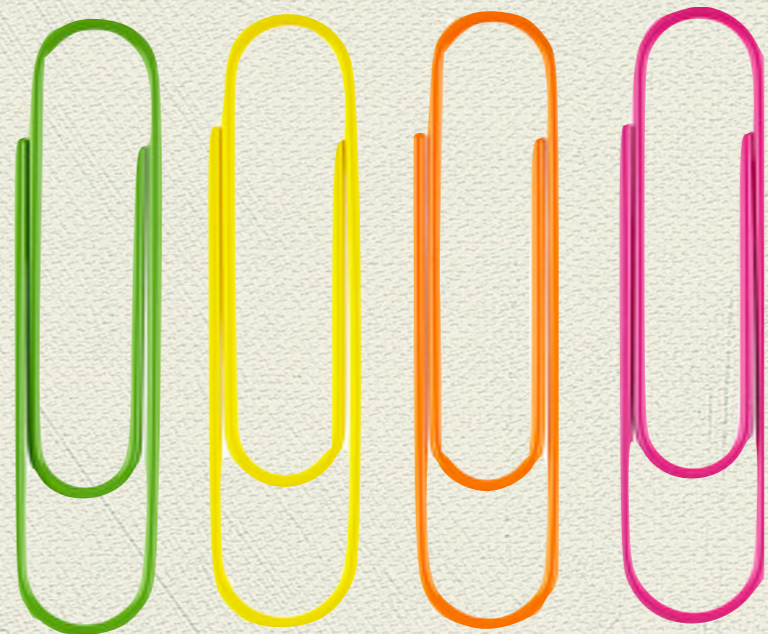


# Why?

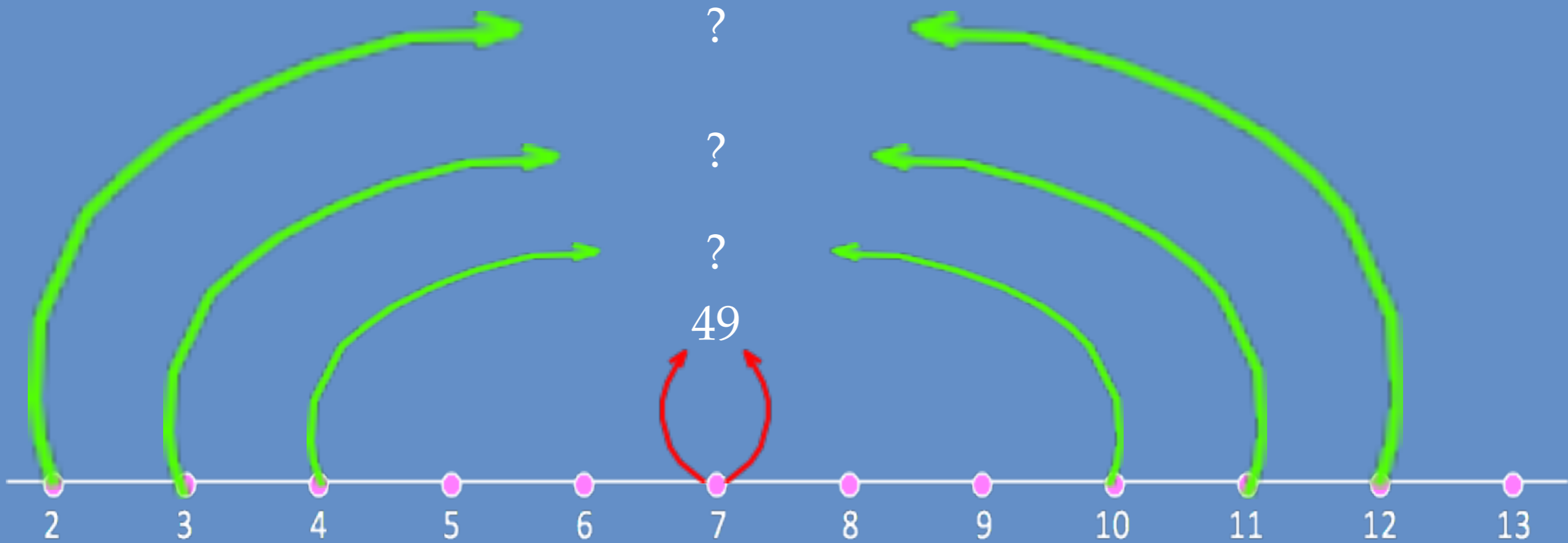


*How does it  
work?*

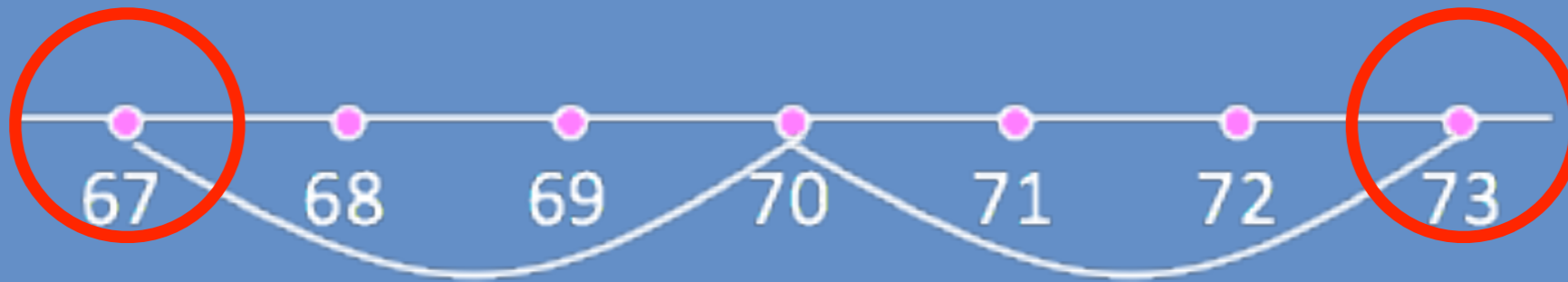




# Take it even further...



*Source: Paul Goldenberg*



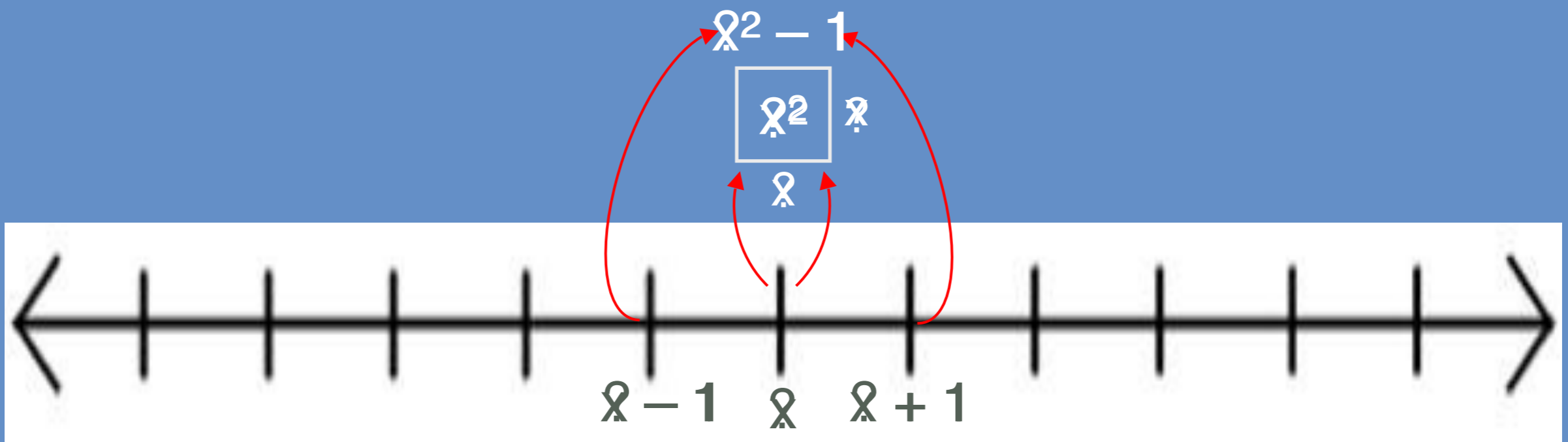
Think...

$$70 \times 70 = 4900$$

$$3 \times 3 = 9$$

$$4900 - 9 = 4891$$

*Source: Paul Goldenberg*



How many malted eggs are in the cylinder?



Source: [estimation180.com](http://estimation180.com)

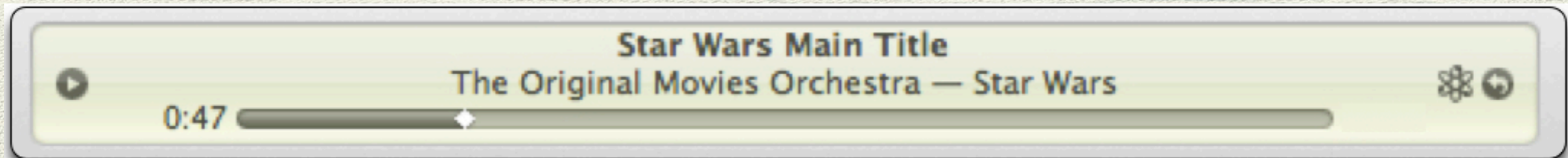
# Malted Eggs Answer



MALTED EGGS:



How long is the "Star Wars Main Title"?



How long is the "Star Wars Main Title"?

Star Wars Main Title

The Original Movies Orchestra — Star Wars

0:00

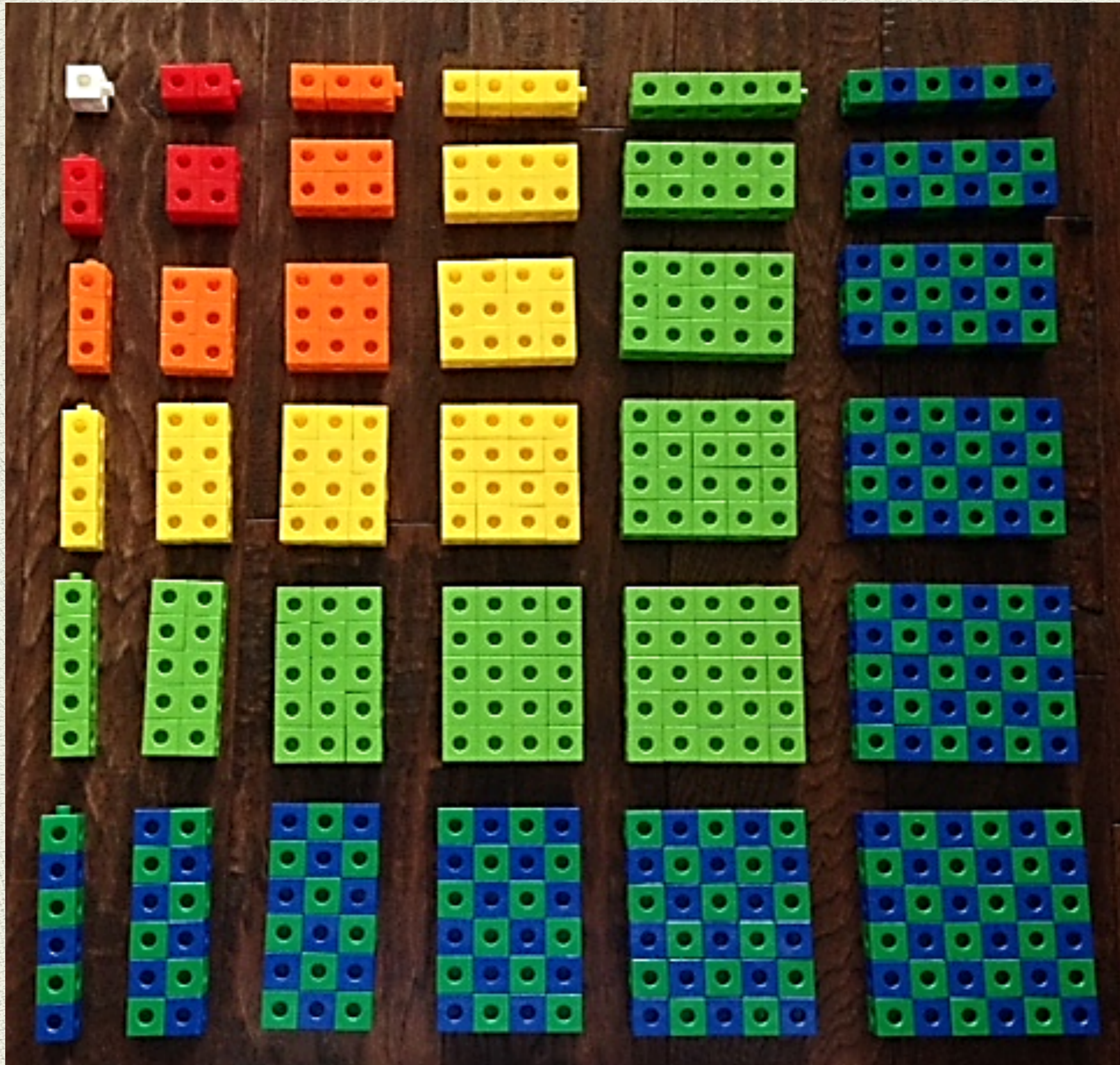
The  
**Original Movies  
Orchestra**  
Presents  
**STAR WARS**

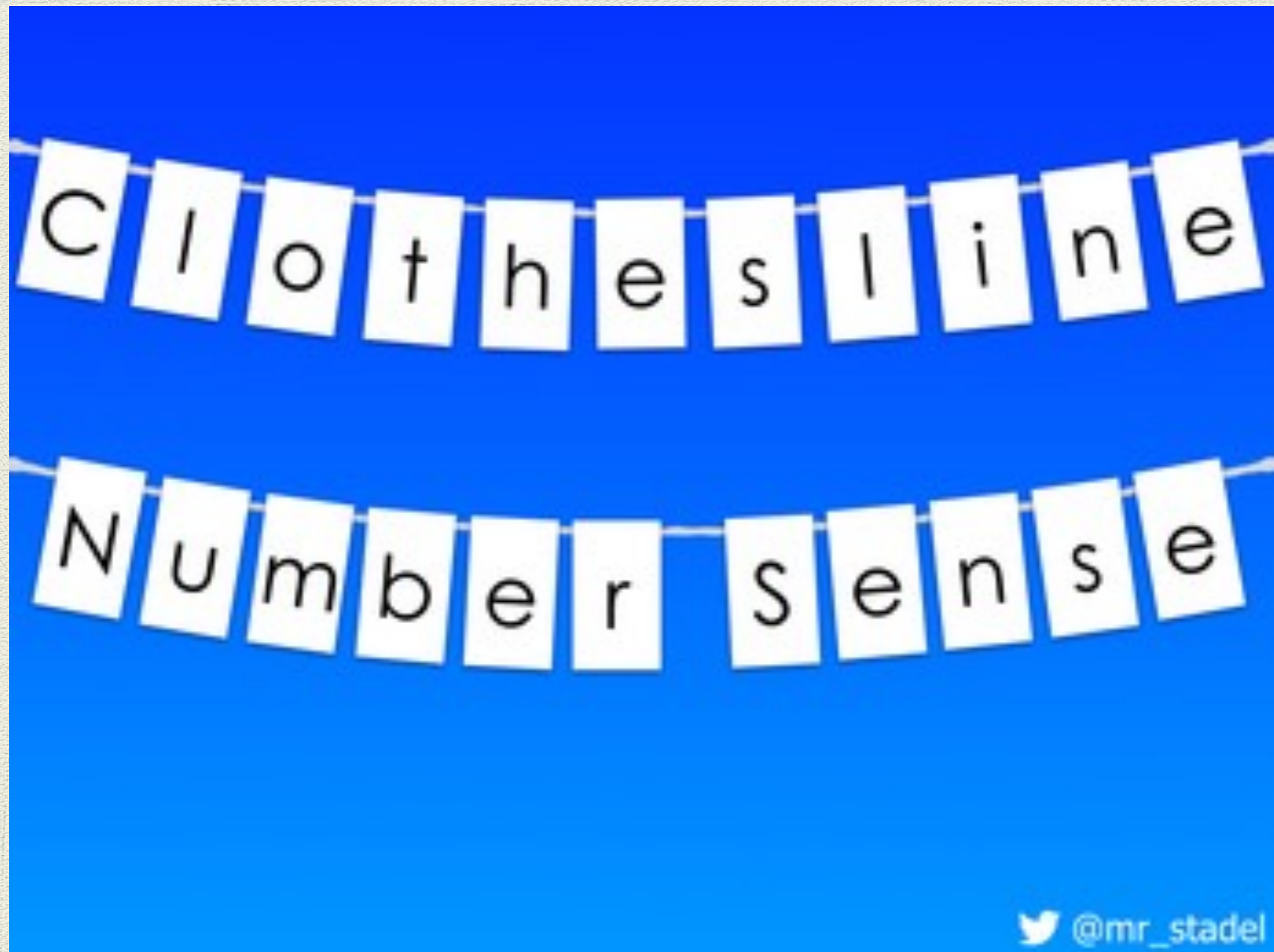
ESTIMATION180.COM

Talk with your table:

Benefits?

Roadblocks?





Source: Andrew Stadel, <http://www.estimated180.com/clothesline.html>

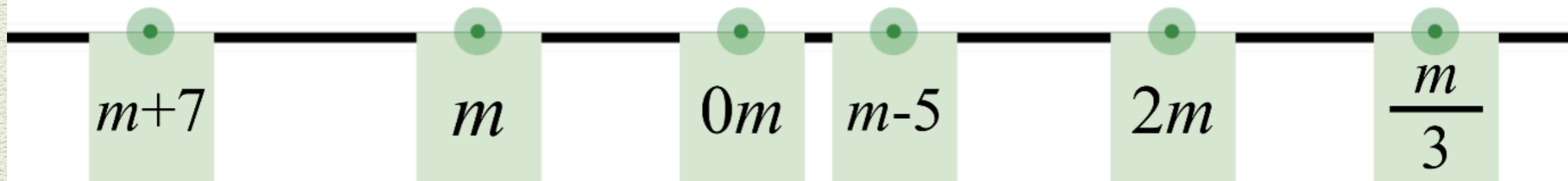
Just to warm up...

$$\frac{1}{3}$$

$$\frac{1}{2}$$

$$\frac{1}{4}$$

Place...Then Space.





$y = m_1x + b_1$

$y = m_2x + b_2$

$y = m_3x + b_3$





<http://mikewiernicki.com/building-number-sense-in-middle-school>