Hemenway Math Night

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Math in the 21st Century

VOX Common Core Math Explained

In Summary:

There are no tricks in math- We teach children to find patterns and why math is logical work.

Common core math sets students up for understanding more complex mathematics.

Common Core math creates **flexible,** problem solvers who will be better prepared for the 21st century work force.

There has been an important shift in mathematics. It is important to remember that:

- Teachers are engaging in Professional Development
- Teachers are practicing multiple strategies
- Teachers are working to ensure your student gets the best education
- Students are showing their mathematical thinking and making their thinking visible.
- Students are communicating mathematically with precise language.
- Students are using lots of different strategies to arrive at an answer.

Framingham's Math Curriculum

Framingham's Math Curriculum is **standards based.** We teach the **Massachusetts Frameworks** which incorporate the Common Core.

The major program we use is **Eureka Math**.

What Eureka Math *is* and *is not*

Using Real-world problems	*Not* endless exercises without context
Understanding why	*Not* isolated memorization
Explaining your reasoning	*Not* working alone
Doing math in your head	*Not* relying on a calculator

"It's not enough for students to know the process for solving a problem; they need to understand **why** that process works so they can use it anytime. Teaching mathematics as a story, *Eureka Math* builds students' knowledge logically and thoroughly to help them achieve deep understanding. While this approach is unfamiliar to those of us who grew up memorizing mathematical facts and formulas, it has been tested and proven to be the most successful method in the world."- Eureka Math

According to EdReports.org. "*Eureka Math* far surpassed all other curricula evaluated."

Tonight Parents Will

- Embrace a growth mindset towards 21st century mathematics
- Learn new strategies to arrive at an answer
- Ask questions to clarify their understanding

Have a Growth Mindset

People with a Fixed Mindset	People with a Growth Mindset
Believe you are either smart or you are not	Believe that the harder you work the smarter you'll get.
Recieve Fixed Praise- Praise for "being smart" or getting the answer correct.	Praise kids for what they are- hard working, good thinkers, great explainers.
	Not afraid to make mistakes! Believe that mistakes are good and help you to learn more. (brain reserach backs this up.)
Taken From The Myth of Being Bad at Math by Jo Boaler. Link on website	Kids with a growth mindset achieve more . They are more persistent and more willing to make mistakes

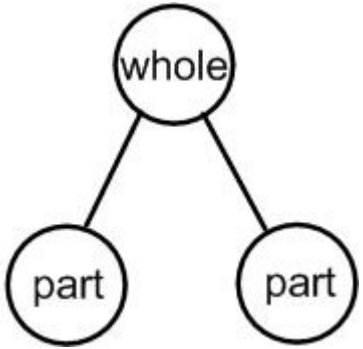
Approaching Difficult Problems

- Ask Specific Questions
- Model what you notice in problems
- Identify Patterns
- Be positive, even if your schooling wasn't a positive one or you learned it differently.
- Take Breaks

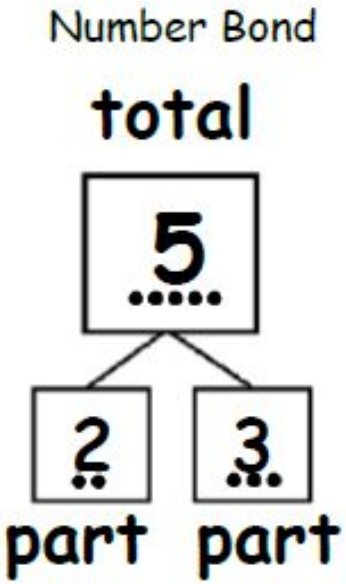
Eureka Parent Supports

Number Bonds

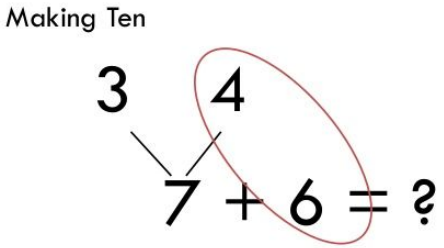
A number bond breaks apart a number into smaller parts. Students become flexible with decomposing and composing numbers.



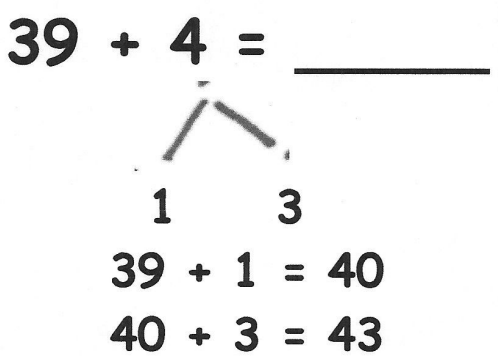
K

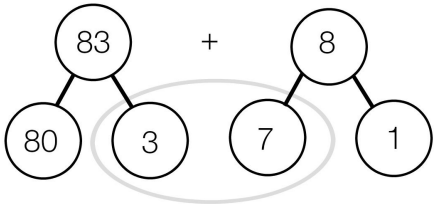

Number Bond
total
5
2
3
part
part

1


Making Ten
3
4
7 + 6 = ?

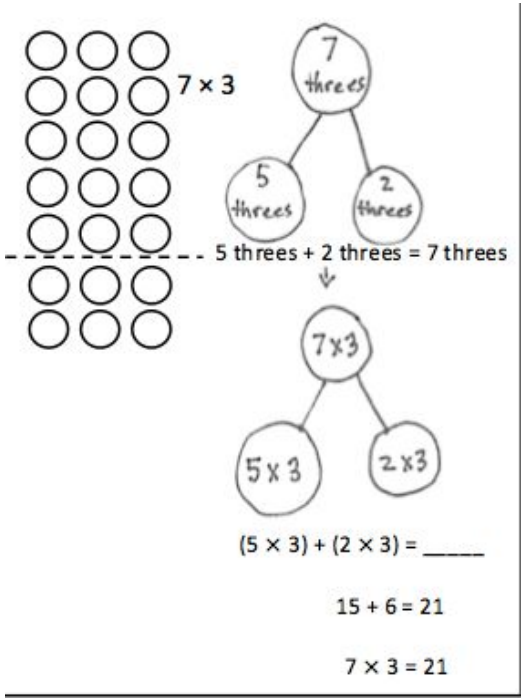
2


39 + 4 = _____
1
3
39 + 1 = 40
40 + 3 = 43

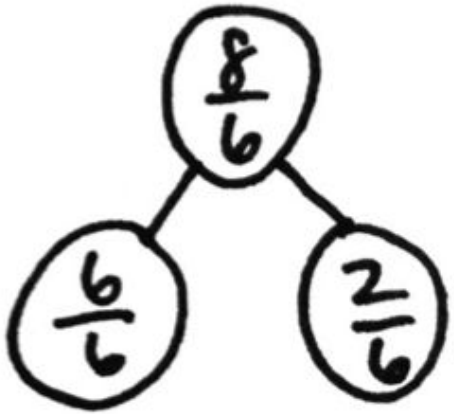

83
+
8
80
3
7
1

80 + 10 + 1 = 91

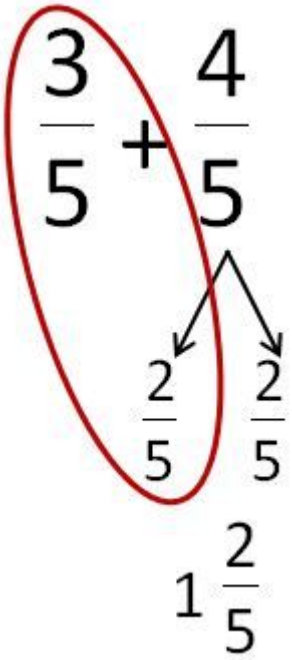
3


7 × 3
7 threes
5 threes
2 threes
5 threes + 2 threes = 7 threes
7x3
5x3
2x3
(5 × 3) + (2 × 3) = _____
15 + 6 = 21
7 × 3 = 21

4


8/6
6/6
2/6

5

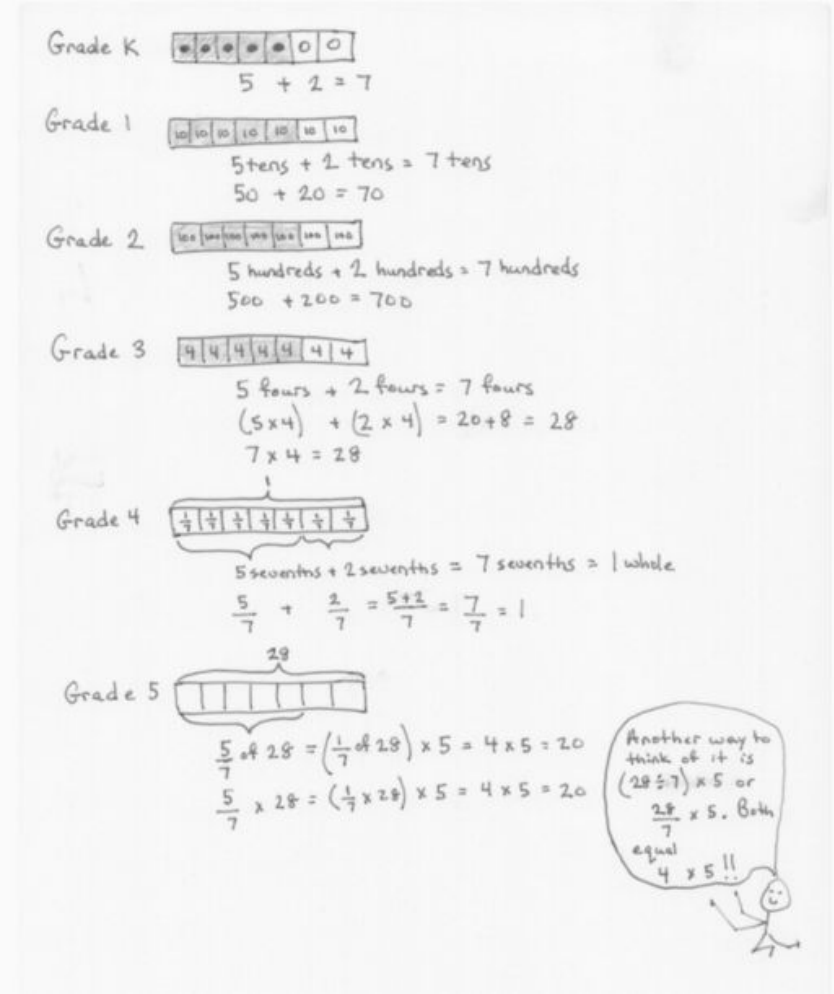

3/5 + 4/5
2/5
2/5
1 2/5

Tape Diagrams

Tape diagrams, also called **bar models**, are **pictorial representations of relationships between quantities** used to solve word problems.

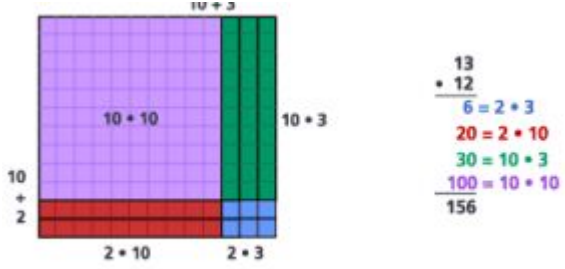
Use of tape diagrams, provides visualization of relationships between quantities thereby promoting **conceptual understanding.**

Tape Diagrams



Area Model

Area model is a model for multiplication problems, in which the length and width of a rectangle represent the factors. Area models provide a **visual representation of the algorithms we use to perform multiplication and division.** These models help children see how the algorithms relate to what is actually happening as a number is increased or decreased proportionately.



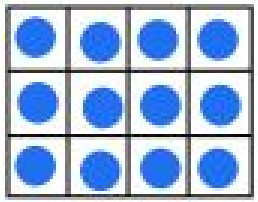
K and 1

Students begin to think about multiples of numbers by skip counting.

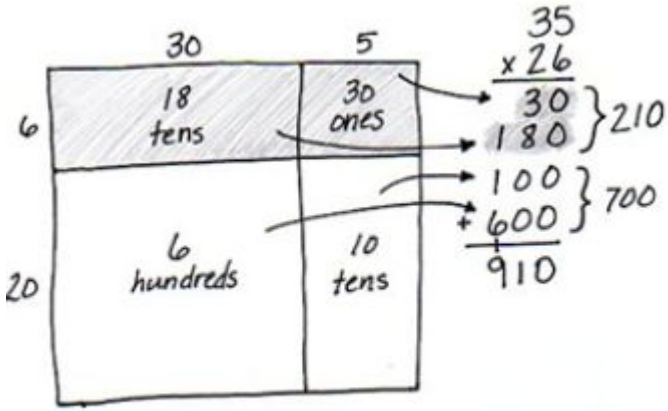
2

Repeated addition begins

3

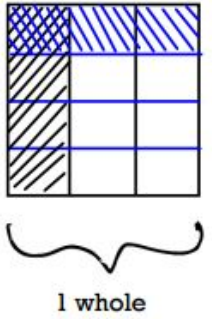


4



$$\frac{1}{3} \times \frac{1}{4} = \frac{1}{12}$$

5



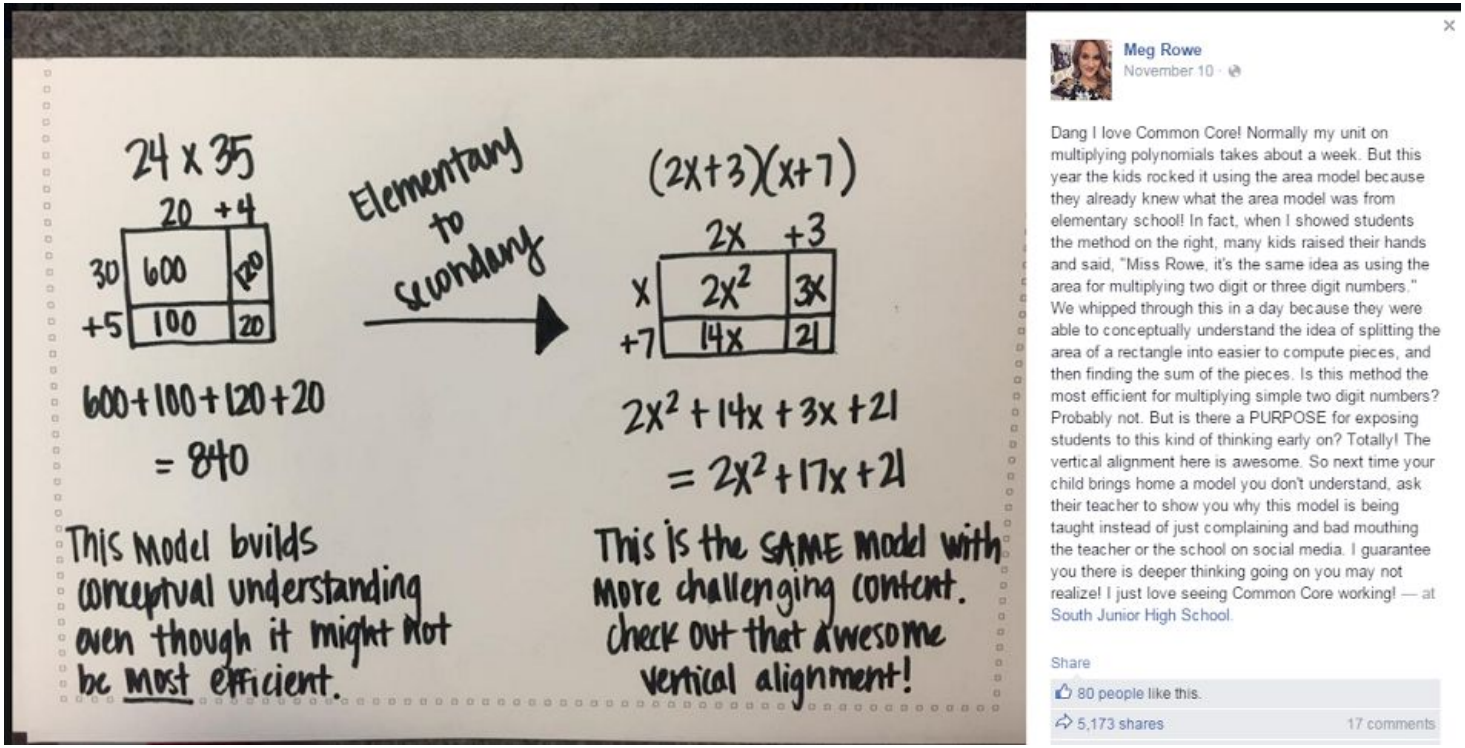
Lets Get To Work

We will split into groups of parents who have students in Grades k-2 and 3-5. Try to solve the problems the same way your students do using the earlier prompts.

Approaching Difficult Problems

- Ask Specific Questions
- Model What you notice in problems
- Identify Patterns
- Be positive, even if your schooling wasn't a positive one or you learned it differently.
- Take Breaks

Its Not ALL bad…



Questions?

Please feel free to email me if you have any questions or concerns you have about math.

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