February

VOLUME 1 ISSUE 5

MATH MOMENTS

Learning the mathematical practices!

MATHEMATICAL PRACTICE #4

Model with Mathematics

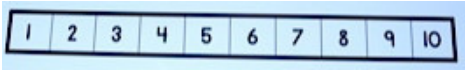
8 MATHEMATICAL PRACTICES

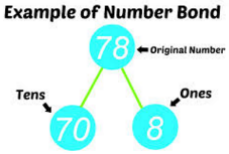
1. Make Sense of Problems and Persevere in Solving Them
2. Reason Abstractly and Quantitatively
3. Construct Viable Arguments and Critique the Reasoning of Others
4. **Model with Mathematics**
5. Use Appropriate Tools Strategically
6. Attend to Precision
7. Look For and Make Use of Structure
8. Look For and Express Regularity in Repeated Reasoning

Mathematically proficient students are able to...

...apply math models to solve real world situations.
...use models to help form an image of math concepts to enhance meaning.
...draw a picture or use a manipulative to solve a problem,
including (but not limited to the following representations of models):

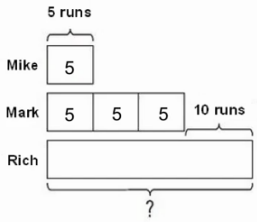
a **number path to add or subtract to 10



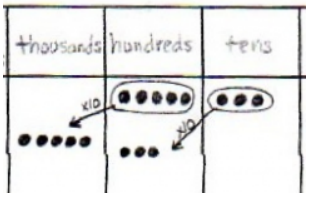


a **number bond to add 8 and 6 or 48 and 6

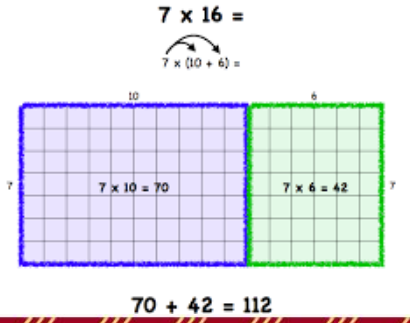
bar models to represent different quantities in a story or word problem



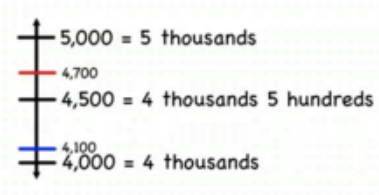
**place value chart and number disks



an **area model or rectangular array to model multiplication, division, and also fraction operations



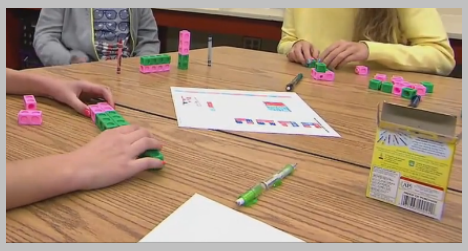
the **vertical number line to round or compare numbers



VIDEO EXAMPLE:

Introduction to Ratios & Proportional Relations...
Grades 6-8 / Math / Modeling

https://goo.gl/FqskuK



inside + × = ÷ mathematics **...invites you into the practices!**

Visit: http://goo.gl/jh88N2

WHAT DOES THIS MATH PRACTICE LOOK LIKE?

Sample problem:

- About how many children are in our school? 50? 200? 1000? To figure that out, we could count, but that's a lot of work. Besides, we don't need to know exactly. How can we come reasonably close, just sitting in our classroom?

-Understanding the Mathematical Practices (2012)

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MATHEMATICAL PRACTICE #4

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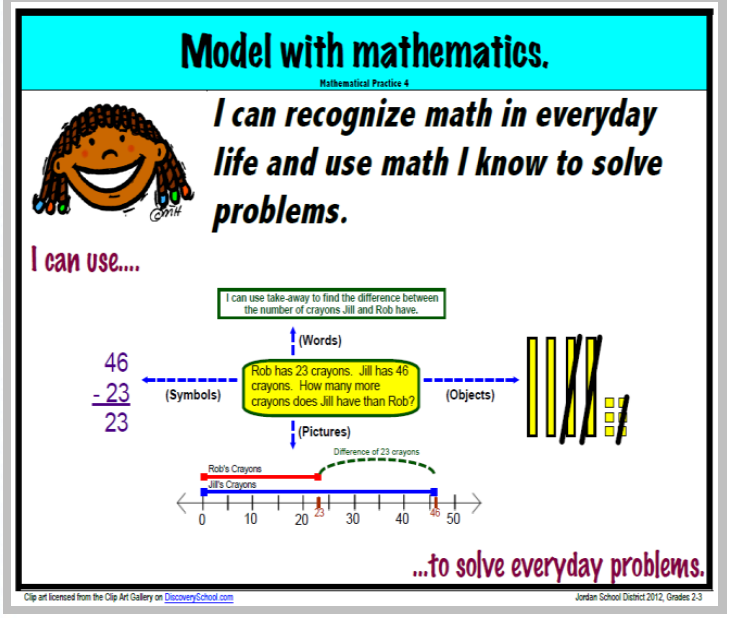


WHAT DOES IT LOOK LIKE AT EACH LEVEL?

Elementary: Students use models to represent and solve a problem, and translate the solution to mathematical symbols.

Middle School: Students use models and symbols to represent and solve a problem, and accurately explain the solution representation.

High School: Students use a variety of models, symbolic representations, and technology tools to demonstrate a solution to a problem.

-adapted from Arizona Dept. of Ed. Mathematics Standards 2010

Questions that can develop mathematical thinking...

What number model could represent the problem?

What are some ways to represent the quantities?

What's an equation or expression that matches the diagram?

Where did you see one of the quantities in your equation?

Would it help to create a diagram, graph, table, …?

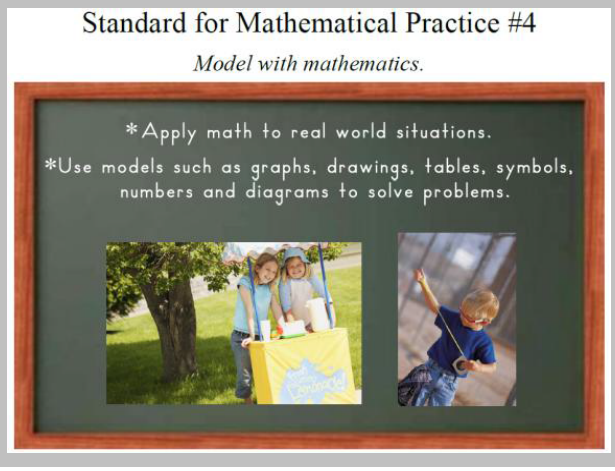
What are some ways to visually represent…?

What formula might apply in this situation?

Own it: Have students use math in science, art, music, and even reading. Use real graphics, articles, and data from the newspaper or other sources to make math relevant and real. Have students create real-world problems using their mathematical knowledge.

What it means: Use math to solve real-world problems, organize data, and understand the world around you.

Reference taken from: Scholastic (http://goo.gl/mv6nFi)



QUESTIONS TO ASK STUDENTS: *---Why is that a good model for this problem?*

---How can you use a simpler problem to help you find the answer? ---How would you change your model if...?

-GO Math! Houghton Mifflin Harcourt (2012)

"Mathematics is not a careful march down a well-cleared highway, but a journey into a strange wilderness, where the explorers often get lost." *-W.S. Anglin*