Helping our children with math!

Under *Common Core State Standards*, our students are expected to know much more than just the right answer. **What does it mean to be mathematically proficient?** Being mathematically proficient means to know **when**, why, and **how** to apply calculations to different mathematical situations.

Common Core Mathematical Practice Standard 2:
Reason Abstractly and Quantitatively

What It Means: Quantitative reasoning is the ability to APPLY math skills to solve real world problems. In our everyday lives we need to go beyond just computing a math problem. This standard asks our students to take a real world situation, change it to an abstraction (an equation or math expression) and then see if their answer makes sense.

Lisa had 6 pretzels. She ate 3 of the pretzels. How many did she have left?

You can represent the problem with an equation: 6 - 3 = p
You can ALSO represent with a different equation 3 + p= 6

You can ALSO draw a diagram to represent the problem.

X	X	X			

How to Help Your Child Become Successful with This Standard

Talk with your children when solving word problems to help them understand how the number sentence or equation they write to solve the problem is connected to the word problem. All the numbers and symbols in the equation stand for <u>something</u> in the word problem. Also, it is important that children recognize the equal sign (=) means 'the same as' in an equation. In the problem 3 x 5 = 15, the equal sign tells you 3 x 5 has the same value as 15.

Sample Problem: 100 students and 5 chaperones went on the field trip. Each bus held 35 people. How many buses were needed?

1. You need to *decontextualize* the problem by replacing the content (words) with numbers and symbols. This is creating an abstraction of the problem.
2. You then determine that a TOTAL of 105 people need to ride the buses – however, only 35 people can fit on a bus. This leads to the problem 105 ÷ 35 = b.
3. The easy part… solving the equation ☺
4. To truly solve the problem… you need to *recontextualize* it – put the number back into the context of the problem to know that *3 really means 3 buses.*

Information taken from: *Putting the Practices into Action: Implementing the Common Core Standards for Mathematical Practice K-8* by Susan O'Connell and John SanGiovanni

Things to Do at Home:

Try Making Number Webs – these encourage flexibility with numbers. You give your child a number and see how many possible ways they can express that number.
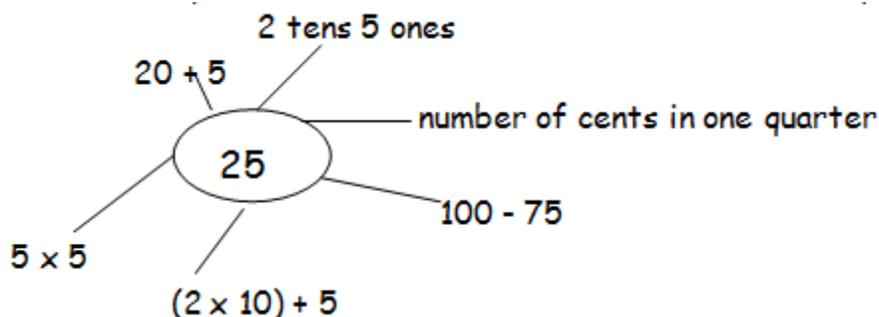
Create Headline Stories: You know what a newspaper article is about by reading the title. We can do the same with math. In math an equation (3 x 5 = n) is the headline. You can work with your children to *write* a story problem to show that they understand the problem. When we ask students to write about their math, this allows us as adults to see their thinking.

Correct understanding of this problem:

3 x 5 = n   I am inviting three friends to my birthday party. I want to give each friend 5 pieces of candy. How many candies will I need to buy? (15 pieces of candy)

As a parent, you can read this problem and know your child understands exactly what the problem is asking, he/she understands conceptually how to solve the problem, and can also solve the multiplication fact!

Incorrect understanding of this SAME problem:
3 x 5 = n   I had three candies. Five of my friends came to my birthday party. How many candies did each person get? (15 pieces)

As a parent, you can read this problem and know your child can solve the math fact 3 x 5 = 15 in isolation – however, does not understand how to conceptually represent the problem. This child 'forced the equation' into their story problem.

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