

# How to help your child learn mathematics



**3<sup>RD</sup>-6<sup>TH</sup> GRADES**

What do the new math standards mean for my child?



# Comprehensive and aligned so that each child may be successful in college level mathematics



- 1<sup>st</sup> grade- Students use their growing understanding of place value to develop strategies to compute sums within 100.
- 2<sup>nd</sup> grade- Students become fluent in two digit addition and subtraction using place value and properties of operations.
- 3<sup>rd</sup> grade- Students extend their understanding to include fluent addition and subtraction within 1000 using place value properties and properties of operations.
- 4<sup>th</sup> grade – Students generalize place value understanding of multi-digit whole numbers and learn to fluently add and subtract using standard algorithms.
- 5<sup>th</sup> grade- Students use their understanding of the base ten number system (exponential growth by powers of 10) and apply this knowledge to fluently compute products of whole numbers using the standard algorithm.

# Caution



*Premature experience with formal procedures may lead to symbolic knowledge that is not based upon understanding, or connected to the real world. This may impede students' number and operation sense (Kiernan, as cited in Huinker, 2002).*

*Researchers express concern that this type of learning can be “highly dependent on memory and subject to deterioration.” (Kieran, 1988) This deterioration results when symbol manipulation is emphasized to the relative exclusion of conceptual understanding and adaptive reasoning. (NRC, 2001)*

# Depth and Rigor of the College and Career Ready Standards will lead to...



- Deeper understanding
- Knowledge that is applicable to life and is retained from year to year
- Students that are independent thinkers and problem solvers

# What does math class look like in the upper grades?



- Students are given a context or word problem first and asked to think of ways to solve it
- Students work alone and in pairs to solve
- Students share their solutions, the reasoning behind their solutions and they justify their answers
- Procedures (strategies) grow from these discussions and are refined as ideas are discussed over time
- Accuracy and efficiency are always emphasized!

# Why do we want students to use multiple strategies?



- Multiple strategies can be used because of foundational principles in mathematics, children learn and understand the big ideas that form the foundation for higher mathematics.
- Number talk clip
- Multiple strategies lead to flexibility of thought, greater understanding is a result
- Fluency means accuracy, efficiency and flexibility.

# How can I help my child with mathematics at home?



- Use ideas from the standards of mathematical practice, they can be thought of as the habits of mind of an educated person.
- Being “out of your comfort zone” means you are growing and learning!
- Please wait to show your child the standard algorithm until it is taught at school. There are many concepts that must be taught before your child can understand and use the algorithm effectively. Many students make mistakes not because they don't remember the steps of the procedure but because they lack the conceptual understanding that would make the procedural mistake obvious to them.
- Your child's teacher is your best resource! Don't spend lots of time and tears on nightly practice that your child may be struggling with, your child's teacher will be happy to provide extra help.



# Resources



- SMH(hardback book)
- Students need to know their math facts. Parents we need you!!!
  - Connect ideas to aid memorization-Meaningful Flashcards (2x4 can help with 4x4)
  - Games vs flashcards
  - <http://www.multiplication.com/>
  - Ipad apps- Addimals, Mt. Multiplis
  - All students must know their facts by the *beginning* of 4<sup>th</sup> grade!