Nov/Dec 2014 *Middletown Public Schools* First Grade

Math Empowers

NCTM: Early Mathematics Fluency with CCSSM

"Students become mathematically fluent thinkers when they have many occasions to make sense of problems and apply their understandings toward increasingly sophisticated problems."

– Gabriel Matney, TCM Aug 2014

The Common Core math standards expect students to be fluent in mathematics through the deeper understanding of the processes. By immersing students in a math-rich environment of problem solving and modeling, they begin to speak the language of math similar to the ability to become fluent in a language. Using Number of the Day activities, facilitate partner and whole class discussions around making the numbers in different ways to deepen the understanding. Real-life word problems will also offer opportunities for modeling different strategies and discussions about reasonability. Read the attached article for ideas for primary students to become creative mathematicians ready to solve problems they encounter in their world.

Problems of the Month

We are supplementing our GO Math! curriculum with the "Problems of the Month" from *Inside Mathematics* in order to increase rigor as we prepare students for the PARCC assessment. Each problem has five levels of complexity. Start your students at level A then challenge them to go as far as their understanding and skills will take them as they continue to work through the remaining levels. Remember the purpose of this problem-solving activity is to allow your students to persevere, which is essential to the learning process. As a facilitator of Problems of the Month, it is essential not to provide answers, but rather to guide student thinking by posing clarifying and reflective questions. Share strategies without emphasizing one solution method over another. Students should share complete solutions only at the conclusion of the activity. See the attached table for the Problems of the Month for grades K-5.

Visit http://www.insidemathematics.org for more information.

For Fact Fluency, Try…

Fact Family Sort: To develop fact fluency in addition and subtraction, use the attached fact family sort to identify related facts. After cutting apart the cards, students use the family cards to create columns under which they sort the related facts. It's a great activity to add to your math center!

Number Lines Addition and Subtraction: Sheppard Software has a number line game for students to practice basic addition and subtraction facts. Check out the Sheppard Software website at http://www.sheppardsoftware.com/math.htm.

Math Rules That Expire

In this ongoing column, we will explore the overgeneralized strategies. These tricks do not promote conceptual understanding and may lead to future misunderstanding later. We will begin with two of the rules…

- **Use keywords to solve word problems. Expiration date: Grade 3.**

Looking for key words strips the problem of its context. Students will look at the numbers and compute them without checking for reasonability. Students also cannot rely on this strategy with multistep problems when they reach grade 3.

- **Adding makes numbers bigger. Expiration date: Grade 6.**

Generalizing addition rules may make it easier to approach the majority of problems, but telling students addition makes things bigger doesn't work for adding zero. When students begin working with negatives, this rule leads to common misconceptions.