November 16, 2015

 Dear Families,

 As I mentioned at Curriculum Night, number fluency is a crucial part of being able to solve problems at high levels. One of the ways we teach fluency it is by helping kids become proficient with **math facts**. This means students can tell--without counting--the facts associated with a number: 4 – 2 = 2, 3 + 2 = 5, etc., up to 20 (an **END of grade 2** expectation). We want students to achieve “automaticity” with math facts. That means they can say an answer within 2 seconds, and write it within 3 seconds.

**Procedure**

Last week, students were given placement tests to find the level that provides their first level of challenge. The resulting level (e.g. math facts up to 7) will be told to each student and is written below. Each week, students should study the addition and subtraction facts up to that number. Each Friday, students will take a quiz on that level. The quizzes present facts at a given level, and some below that level to see that students are maintaining previous facts as they go along. Students are given 3 seconds per fact. They are allowed an error rate of 3, so if they score 32 or better (39 on multiplication/division facts), they pass. Each Monday, I will send home the scored quiz and a slip of paper telling the date of the quiz, whether the student passed, and what level to study next (same or different).

**Practice**

 It is expected that students make math facts practice a part of daily homework. Even 5 minutes a night will make a difference. I suggest students use the cards until most or all facts are known, then take timed quizzes to practice writing them quickly. I’ve attached both flashcards and practice quizzes at your child’s level.

To use the flashcards: Cut them out write the answers on the back in light pencil. For addition, the answers will all be the same. When flashing addition cards, ***cover one of the addends with your finger.*** Students must tell the missing addend. If the student answers incorrectly or takes longer than 2 seconds to answer out loud, put those cards aside and make them the focus of practice. Before using those cards again, review the answers several times.

To use the quizzes: Time your child to see how long it takes to finish all 30 problems. The eventual goal is 90 seconds. Students should be encouraged to finish all the problems faster and faster, instead of being told that time is up and to stop even if they’re not done. At school, when the time limit has been reached students are told to switch from pencil to colored pencil. This alleviates the frustration of not finishing for many students (though of course only problems completed in time count on the final score).

Homework practice might look like this:

**Monday:** Cut out flashcards and write answers to facts. Use the cards and find out which ones need further practice.

**Tuesday:** Practice the challenging facts several times.

**Wednesday**: Practice challenging facts and take a practice quiz.

**Thursday:** Practice all facts and take another practice quiz.

Of course this is just a guideline: spend more time on cards or quizzes as you think best. For example, if your child answers *all* the facts aloud in 2 seconds the first night then that indicates that the timed aspect of reading, recalling, and writing in 3 seconds is what is hardest, so spend the rest of the week practicing quizzes.

**Resources**

 I will send home similar flashcards for each new level when students reach it. In addition, the *A Plus Math Flashcard Creator* (accessible via our class blog) will let you create a nicer set of cards. The websites *Math Fact Café* (addition and subtraction) and *Math Aids* (multiplication and division) will let you create your own quizzes to practice the timed aspect. I will not be sending home practice quizzes after this week. You can make and print them online or by hand. Students could even do that themselves: what a smart way to review facts! Besides the websites mentioned above, there is a plethora of other sites with games and practice you can find by Googling the topic.

 Another resource we are fans of here at school, is the free website *Xtra Math.org*. More than just a flash game, this site offers an adaptive program which does an absolutely fantastic job of presenting facts, giving quizzes, offering tips, and tracking student progress for you and I to see. Next week I will send home information on your child’s account and how to get started.

**Going Forward**

Students will be introduced to the above practice routines and will be given time in class to practice weekly. The process of memorization, however, does not come automatically for some students. It may be that despite practice, students do not pass the quiz at school for weeks at a time (especially at first). In such cases, it will be necessary to aim for progress each week instead (e.g. more correct/complete than the week before) so that students do not become discouraged. This is especially true when students reach levels after 12, because two levels are combined into one quiz: 13 + 14; 15 + 16; 17 + 18; 19 + 20. By then, however, most students are in the ‘swing’ of practicing facts and this does not present an impossible obstacle; rather 2 or more weeks are needed to become proficient.

Thank you,

Kenneth Avery