Family Math News: Understanding Addition and Subtraction Strategies

Dear _____

During the week of <date> we will be starting a new math unit focused on two-step word problems with addition and subtraction and some simple multiplication. The purpose of this letter is to give you some background information about our new unit.

Focus of the Unit:
This unit will build on the conceptual understanding developed in second grade and develop procedural fluency within 1000. Students will utilize and understand the place value of 3-digit numbers and work with numbers up to and including 1,000. In addition, this unit requires students to understand that the base-ten structure of our number system is useful when adding and subtracting numbers. Students will be practicing, refining, and developing efficient strategies to add and subtract and solve different types of story problems. They will be sharing their thinking about how to make sense of and solve problems.

Building off Past Mathematics:
In grade 2 students developed strategies for adding and subtracting fluently within 100. Student in grade 2 add and subtract within 1000 as well, yet are not expected to be fluent with such large numbers until grade 3. Students take time to act out story problems and draw pictures to accurately represent various situations.

Strategies students will learn:

Strategy Name	Why students may use this strategy	Example of strategy:	Example of strategy:
Decomposing or separating numbers to add or subtract	• To make use of facts I know (6+9) OR (7+5) • Avoid the complexity of "carrying" over to the next number when adding or "borrowing" when subtracting • Create tens which are more accessible numbers to mentally compute	**756 + 279** **(700+50+6) + (200+70+9)** **700 + 200 = 900** **50 + 70 = 120** **6 + 9 = 15** **900 + 120 + 15 =1035**	**321 – 117** **321 – (100 + 10 + 7)** **321 – 100 = 221** **221 – 10 = 211** **211 – 7 or (6 + 1)** **211 – 1 = 210** **210 – 6 = 204**
Creating new problems	• Strong command of facts that make 10 and 100 • Avoid complexity of "carrying" over to the next number • Fewer parts to track	**721 + 279** **721 (-21) + 279 (+21)** **700 + 300 = 1000**	**547 – 297** **547 (+3) – 297 (+3)** **550 – 300 = 250** **(500 – 300 is 200 SO 550 – 300 is 250)**

Changing a number when adding or subtracting and adjusting the answer to account for the change	• Strong command of facts that make 10 and 100 • Avoid complexity of "carrying" over to the next number • Fewer parts to track	**721 + 279** **721 + 280 (adding 1 too many)** **721 + 280 = 1001** **1001 – 1(the 1 extra we added) = 1000**	**547 – 297** **547 – 297 (+3)** **547 – 300 (removing 3 too many) = 247** **247 + 3 = 250 (add back the extra 3 we took off)**

Representations are tools that students use to show the strategies that they are using. Number lines, drawings, number strings and equations may all be examples of representations. Students are challenged to consider different representations when using strategies. Each time a new representation is attempted, students deepen their understanding of the underlying mathematical concepts they are learning. Number lines and decomposing numbers are building blocks to factoring equations and graphing functions in algebra. Elementary expectations lay the foundation for these ideas.

How to help at home: One of the best ways to help your child at home is to talk about math ideas. In the bustle of everyday life making time to math talk at home may feel out of reach. Here are a few strategies for sneaking math conversation into daily interactions after school:

- License plate fluency: As you park behind cars attempt to determine the sum for each license plate. This is not the grade 3 standard but it supports fluency with addition and subtraction and is just fun! Be sure to ask your child how they figured out the answers to support their ability to explain their reasoning.
- Grocery store math: As mentioned in an earlier newsletter estimating the grocery bill as your children shop with you can develop reasoning about quantities and fluency with adding and subtracting. As you shop ask your child the following questions:
    - About how much is this item?
    - About how much would it cost for 3 of them?
    - Give an estimate for the total in the basket now?
    - How far are we from $100? How do you know?

It is always great to offer a little prize to your child for a very close estimate that is accompanied by sound reasoning! Have fun with this and enjoy talking math with your child.

Grade 3 Math Team