FIRST GRADE MATHEMATICS – Unit 1

Dear Parents,

During Unit 1, your children will develop strategies for adding and subtracting whole numbers based on their prior work with small numbers. They will use a variety of models, including discrete objects and length-based models (e.g., cubes connected to form lengths), to model add-to, take-from, put-together, take-apart, and compare situations to develop meaning for the operations of addition and subtraction, and to develop strategies to solve arithmetic problems with these operations. Your children will understand connections between counting and addition and subtraction (e.g., adding two is the same as counting on two). They will use properties of addition to add whole numbers and to create and use increasingly sophisticated strategies based on these properties (e.g., "making tens") to solve addition and subtraction problems within 20. By comparing a variety of solution strategies, your children will build their understanding of the relationship between addition and subtraction.

OPERATIONS & ALGEBRAIC THINKING/FACT FLUENCY

Your children need to:

- Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

- Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem

- Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

- Apply properties of operations as strategies to add and subtract.[2] *Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.)*

- Understand subtraction as an unknown-addend problem. *For example, subtract 10 – 8 by finding the number that makes 10 when added to 8. Add and subtract within 20.*

- Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = _ – 3, 6 + 6 = _.*

- *Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).*

- *Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).*

- Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 –1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.

WAYS PARENTS CAN HELP

- Tell your child an addition or subtraction word problem. Encourage them to "retell" the problem in their own words in order to build comprehension of the situation. Then have them use objects (Legos, pasta shapes, cereal, etc...) to act out the addition or subtraction word problem.

- Encourage your child to represent word problems using words, numbers, and pictures/models when solving them.

- Keep a set of flash cards in the car to practice as you run errands. Encourage your child to explain the strategy that they used to solve the problem.

- With a deck of cards, use the number cards to play Fact War. Each player flips 1 card and the player to say the sum first, gets both cards

- Have your child sort a set of flashcards based on the strategy that they would use to solve the problem. Have them select one strategy pile to solve.

- Students often overuse "counting on" for all math facts. Help your child to generate facts that are efficient for counting on and facts that are not efficient for counting on (you could create a list or use flashcards to make groups). Encourage your child to explain why counting on would not be efficient for a fact (such as 5+7).

KEY VOCABULARY

add	equal	less	sum
addends	equation	more	unknown
data	fewer	strategy	
difference	graph	subtract	