Discussion Points for *Crossing from Grade 1 into Grade 2*

What is the situation in your school? (Slides 1 to 8)

- It is not unusual for 1st graders to end the school year and 2nd graders to begin the school year having not developed an understanding of the part-part-whole constructs for numbers in the 7- to-12 range. (Van de Walle, page 48). They should be able to compose and decompose numbers without counting by ones.
- Since 2nd graders must extend their knowledge of number facts as well as operate with two- and three-digit numbers, teachers need to structure instructional strategies to help students progress beyond counting by ones to become fluent with number facts. Fluency is much broader that merely memorizing the sums and corresponding subtraction facts. It involves applying facts to solve problems, renaming addends as needed, and consistently responding with accurate answers in a timely manner.
- Students must understand all the parts of each number, especially numbers to 10 so that they can use their knowledge to decompose pairs of numbers and recompose them into " friendlier" addends as they work with larger numbers.
- Does the instructional program include fact strategies – not just memorization of facts?

How well are you and your colleagues using formative assessment as an instructional tool? (Slides 9 to 19)

- Assessment is the key. When teachers understand what students know and can do, they can use that knowledge to make more effective instructional decisions and individualize within the context of the total instructional program. Teachers gather information about what students know and can do in many different ways.
- Because knowledge of number facts – especially sums and related subtraction facts to 10 is so critical for all students, teachers need to determine each student's understanding of number combinations and keep simple records of what children still need to work on. For example, the slide shows the combinations of 7. Think of the students in your class. If they are 1st graders, which students could explain why all of these examples have the same value or could complete this equation 4 + __ = 7 ? If they are 2nd graders, how many of them are fluent enough with these combinations that they could, without hesitation, tell how they could rename 7 in the following situation so that the expression 46 + 7 changes to an easier expression of 50 + 3? Do they understand the equivalence of the two expressions?
- Classroom conversations, teacher-made unit tests, standardized tests, questions and answers, looks on students' faces, informal assessments – all give teachers information about what students know. Whenever students give an answer, there is logic behind that answer. If the answer is a mistake, we need to understand what the misunderstanding is behind that answer. This is important because the instruction is different for different kinds of errors.
- One way to determine if a child knows the parts of numbers is to do an assessment with each student. The hiding assessment is a quick interview. Conducting the hiding assessment is an investment of time that will pay off as the year progresses with better student understanding and achievement. The teacher begins with a particular number of counters (up to 10). The teacher hides some of the counters and shows the child the rest and asks the child to determine how many are hiding. This is repeated several times, with the teacher hiding a different number of counters each time. For example if a child knows the combinations for 4 and 5 it is time to assess knowledge of 6. The teacher gets 6 counters and hides all the

different parts of that amount and has the child tell how many are hiding each time. The child who knows the combinations will answer quickly and confidently. The child will not count with fingers, nod head or pause when saying the amount.

- After assessing a child's understanding of the parts of the number let the child know which number(s) he/she knew well. Then tell the child what number he/she needs continued practice. For example, during the assessment a child may pass combinations of 4, 5, and 6 with ease but starts counting or pausing when working on the combinations of 7. To help build student responsibility, teachers might set aside a time each week when each child is assessed to see if he/she is ready to move to the next number. One method that has worked in some 2nd grade classes is to let the children know that they are responsible for letting you know when they are ready to be assessed. There can be a signup sheet in the classroom. When a teacher is ready to assess students, she refers to the sign up sheet to determine whom to assess.
- Keeping track about where students are and the progress they are making is critical for all concerned – teachers, students, and parents. During the first few weeks of school it is important to take the time to assess students' understanding of number combinations. For example, if a student does not understand that 8 is 4+4, 3+5 +1, etc. this student will struggle with adding and subtracting two and three digit numbers. This understanding is critical to the development of 2-digit and 3-digit numbers. As the year progresses, we do not need more tests or assessments than we already have; rather we need to look with different eyes at students' daily work. Abundant information is available by looking at types of mistakes in their conversations and written work, analyzing the errors to plan appropriate interventions.

The list of strategies and games for helping children learn facts is endless. A few ideas are included to prompt your thinking. Which of these ideas are you currently using and what additional ones can you share with colleagues? (Slides 20 to 42)

- During math time teachers and children can work on tasks or games, sometimes as the teacher-directed lesson, sometimes as a group game, and sometimes as the same task or game that everyone is doing but differentiated by the numbers students are using. For example, pair a child with another child who needs to learn the combinations of 12. Other children in the room will be working on different numbers. Many of the tasks in the remainder of the slides are described in numerous resources.
- Spill the Counters -- Choose a designated number for the group. Have the children place that many counters in a canister. Shake and spill the counters. Using a recording sheet, have the students color in the appropriate number of counters. What do you notice about the number? Conversation may include, "I got 3 red and 2 yellow" or "5 can be 2 and 3."
- Cover Up – Choose a designated number and place that many counters under a cup or piece of tagboard. Next, pull some out from under the cup. Then the child will tell how many are hidden under the cup. For example, if there are 6 counters under the cup and 2 were pulled out, the child would respond, "2 and 4 is 6."
- Missing Part Cards – Using card stock, create a set of flip cards for numbers 1-10. On each flip card, write the designated number in the first space, and use the remaining two spaces for dots. Cover up the last set of dots (or the first set of dots). Have children respond and then flip the cover to check. This can be read as 5 is 3 and ? or 5 minus 3 is ?.

- Drop and Decide - a multi-day series of activities described on the slides.
  Subitizing and Quick Images – Use objects on the overhead; Uncover them for a brief moment and encourage student to think about how many they saw. Give them a second, quick peek and then talk about how many and how they knew.
- Arithmetic Rack - There are two rows with ten beads on each row. These can be used in the same manner as the ten frame with the same questions: Show the number 8. Now show 5. Ask: Do you need to clear the rack and start over or just move 3 beads over? How far are you from 10? Show the number 14. How might you use the arithmetic rack to figure out what 8 plus 5 equals? Racks could be made with additional rows to show numbers greater than 20.
- Solo Make 10 – This game for one student practicing sums of 10. Deck needs to be shuffled before 4 cards are dealt face up on the desk. If a card with 10 is on the desk, take it out and place it face down to the side. If 2 cards can be used to make a sum of 10, they should also be put face down to the side. Then deal out enough cards to keep 4 face up, again making sums of ten if possible. If no sums are possible, look at the top card in the deck. If it can be used to make a sum of ten, do so and replace the card used. If the top card is not helpful, put it aside and go to the next card in the deck. This is similar to 7 Up.
- Number Talks - Display a single equation or amount on the board or overhead projector. Tell students to decide what they think the answer is and be ready to explain their strategy for finding that answer. Don't call the answer out loud, but show that you have an answer by putting your thumb up in front of your chest
- Capture – Draw cards or roll dice ad/subtract and capture are typical center games. Look at the games on the NC Department of Public Instruction's website for many examples.
- Zero, My Hero – Model this game by first placing a 6, a 3, and a 5 card on the overhead (or writing the numbers on the board. Ask if these cards could be used with addition and/o subtraction to get to zero (no). Add a fourth card with the number 2. Model how these 4 cards can be used to create equations that end with zero. New round: deal 3 more cards (5,7, and 2). Have students suggest equations to reach zero. (ex. 5 + 7 = 7 and 7 – 7 = 0) (ex. 7 – 2 = 5 and 5 – 5 = 0). New round: deal 3 cards (4, 7, 1). Since these cards cannot be used to reach zero add a fourth card (8). These cards won't work either, so discard all four. New round: deal 3 cards (6, wild card, 9). Have students suggest equation(s) that result in zero.

Why are the final thoughts important in helping all students reach high achievement in mathematics? (slides 32- 33)