Observing First Graders as They Count

Your students will be counting many things during this unit and throughout the year. Counting involves more than knowing the number names, their sequence, and the way to write them. It is the basis for understanding our number system and for almost all of the number work primary-grade students do.

By the end of Grade 1, students are expected to rote count, read and write numbers to 120, count from any number within that sequence, and accurately and efficiently count quantities up to 50–60 by 1s. They use the counting by tens sequence they mastered in Kindergarten as they add or subtract 10 to/from two-digit numbers, and as they represent and operate on two-digit numbers. Students develop their understanding of these ideas through repeated practice with the rote counting sequence, and with organizing and counting sets of objects. In Grade 1, many of the activities that focus on quantity can be adjusted so that students can work at a level of challenge that is appropriate for them.

Students will have many opportunities to count and use numbers in this unit and throughout the year. You can learn a great deal about what your students understand about counting by observing them as they work. Listen to students as they talk with one another. Observe them as they count objects and as they count orally and in writing. Ask them about their thinking as they work. You may observe some of the following:

- **Counting Orally** Generally, students can count orally further than they can count objects or correctly read and write numbers. For some students, the counting sequence is just a song. They do not necessarily know that when they count one more (or less), they are referring to a quantity that has one more (or less), nor do they associate this with adding/subtracting one to/from a number. While they may have learned the pattern in the numbers in the ones place (i.e., 1, 2, 3, . . ., 31, 32, 33) and the pattern of counting by 10s (10, 20, 30, . . .), many find it challenging to coordinate the two and find the "bridge" numbers (e.g., 69, 70 or 99, 100) difficult. This is especially true with counting backward, because students are usually less familiar with this sequence. Students need many experiences counting and adding small quantities as they learn about the relationship between the counting words and the quantities they represent.
- **Counting Quantities** Most first graders begin the year able to count quantities up to 20, whether given a set of objects (e.g., "How many bears are there?") or asked to make a set of a given size (e.g., "Can you show me 18 bears?"). While they may have accurate and efficient strategies for counting smaller sets, these strategies may not be as effective with larger quantities. First graders are likely to revisit aspects of counting, such as organizing and keeping track, as they work with larger sets.
- **Organizing a Count** Some students count the number of objects correctly when they are spread out in a line, but have difficulty organizing scattered objects for counting. Others count objects they can pick up, move around, and organize with far more accuracy than static objects, such as pictures of things on a page. Some students count objects correctly when the group is organized for them, but are less successful when they need to organize or keep track of objects for themselves. They will need many and varied experiences with counting to develop techniques for counting accurately and for keeping track of what they are counting. Note students' strategies (or lack thereof) for organizing a set and share them with the class. Early in the year, tools such as Ten Frames can support students who are not yet counting consistently because they do not have a strategy for organizing and keeping track of the set. As the amounts they are counting and representing increase over the course of the year, strategies, such as counting by groups and using cubes organized in sticks of 10, become central.
- **Representing a Count** Quantities can be represented in a variety of ways. Sometimes students use a number or word to represent a quantity. Other times, they use pictures or objects to show how many. They also work in reverse, counting out a set when given a number, orally or in writing. Many beginning Grade 1 students are just gaining competency in writing numbers and often write some numerals backwards. These students need more practice with number formation, perhaps built into the handwriting portion of the curriculum. As the size of the numbers they encounter increases, another type of reversal often arises—students may write 21 for 12 or 42 instead of 24. While these students have identified the correct numerals, they have not yet made sense of the place value of our base-10 number system. Understanding this system requires coordinating the way a number is written (e.g., 45) and the way a number is named (e.g., forty-five) with the placement of each digit within the number; each digit represents different quantities, depending on where it appears. This understanding develops over the course of Grade 1 and beyond, as students work with greater numbers.