

Counting by Groups

In order to count by groups accurately, students need to know the number names and their order by rote (e.g., 2, 4, 6, 8, 10, etc.). Although many students *do* know the “song” for counting by 2s, 5s, or 10s when starting with zero, most do not understand that each time they say a number they are adding another group of 2, 5, or 10; that each number can stand for a group of objects.

In order to connect the counting sequence to quantities, the *Investigations* curriculum grounds first-grade students’ work with equal groups in situations and contexts that provide concrete models for counting by groups (e.g., how many hands for counting by 2s or how many fingers for counting by 5s). These activities also encourage students to develop strategies for organizing and keeping track of objects, whether they will count them by 1s or by groups. The numbers are intentionally kept small to encourage students to use familiar number combinations and relationships in finding solutions.

As you observe students at work on the various activities in this investigation you are likely to see students who do the following:

Count by 1s

Many first graders are still developing techniques for counting, often keeping track of quantities in the 20s and above by 1s. With regular practice, these students will become more secure and confident with counting by 1s and will begin to group and count by numbers other than 1 with meaning.

Organize but Count by 1s

Some students organize a set of objects into equal groups (say 5s) but still count them by 1s. These students may not yet be ready to use a single number to stand for a group of objects or may not yet be familiar enough with the rote sequence for counting by 5s to do so.

Use a combination of counting by groups and 1s

A student who regularly counts on to solve addition problems with smaller numbers, reverts to counting all when faced with a problem with larger numbers. Similarly many students begin counting a group of objects by groups, but revert to counting by 1s as the numbers grow larger and/or as their familiarity with the sequence falters.

Students might say:



“There’s 2, 4, 6, 8 hands for 4 people, then 9, 10, for 5 people, then 11, 12, for 6 people.”



“5, 10, 15 . . . 16, 17, 18, 19, 20, 21, 22, 23, 24, 25.”

Add Equal Groups

Rather than counting by 2s or 5s (the group size), some students will add all the groups. (“These two 2s are 4, 4 and 2 more is 6, 6 and 2 is 8 [and so on].”) They see each group as a 2, and they may even know some numbers in the counting by 2s sequence, but they do not yet see that they can count up by 2 to refer to an increase of 2 more. For these students, addition is still a more comfortable and reliable way of finding a total. More experiences with counting and organizing collections will help students gradually build an understanding of counting by numbers other than 1.

Count by Groups

At this point in the year, some students will be successfully counting by groups other than 1. Others will be just beginning to count by numbers other than 1.

Things to Watch For

As students make the transition from counting by 1s to counting by groups over the course of Grades 1 and 2, there are some common issues or errors to watch for.

- Isabel proudly tells her teacher she can count the teddy bear counters by 5s. She touches the first bear's head and says "5." She touches the second bear's head and says "10," etc.
- Vic has 3 towers of 10 cubes and 2 single cubes. He counts them: "10, 20, 30, 40, 50" (instead of: "10, 20, 30, 31, 32").
- Diego counts a set of cubes by 1s and announces that there are 22. The teacher then asks, "What if you counted the cubes by 2s? How many cubes will there be?" He is unsure, and counts to find out. He is surprised to find out there are 22.
- Marta can successfully count a group of objects by 2s, moving two cubes each time she says one number. When the teacher asks her, upon finishing the count, how many cubes she has altogether, she recounts the cubes by 1s. She does not yet completely trust the totals she arrives at when counting by numbers other than 1.
- The 20 students in Miss Lloyd's room are sitting in groups of 5. She asks Danielle to count the students by 5s. Instead of assigning one number to each group of 5, Danielle assigns 5 numbers to each student, arriving at a total of 100.