Dialogue Box

How Many Fingers?

Grade 2 students usually know how to count by 10s by rote and how to make groups of ten, but many revert back to counting each object by 1s to find the total. Students who are beginning to understand that one number can stand for many objects will advance from counting by 1s to counting by groups, knowing that this will result in the same total number of objects.

This discussion in Session 3.4 about finding the number of fingers in a classroom with 32 students highlights students' counting strategies and ways to record and keep track of a count. Many students used groups of ten to solve the problem, but not all used these groups in meaningful ways.

Teacher: I noticed that there were many different strategies for finding the total number of fingers in our class. As each person shares, listen carefully and decide whether your strategy was similar or different. If you used materials to solve the problem, show us how you used them as you explain your strategy.

Melissa: I used a class list, and I put a 10 next to everyone's name for ten fingers. Then, I added up groups of ten. I knew that ten 10s was 100, so I circled groups of ten. I added 100 + 100 + 100 + 20 and got 320 fingers.

Teacher: You used groups of ten to solve this problem. Your idea of putting circles around ten 10s seems like a good way of keeping track of what you counted. Did anyone else use a strategy similar to Melissa's? [Three students raise their hands.] How about a different idea?

Juan: I used 10s too, but what I did was make towers of ten cubes. I made a tower of ten for each person and then I counted the towers.

Teacher: I have two questions for you. How many towers did you have, and how did you count them?

Juan: I had 32 towers because I counted only the kids in the class. Sorry, I didn't include you! And then I counted by 10s . . . 10, 20, 30, 40, 50, all the way to 320. [Juan shows his 32 towers to the class.]

Tia: I did it like Juan, but I just went down the class list and said, 10, 20, 30, 40, until I ran out of names. And I got 310.

Simon: I did it like Juan. I used cubes too, but I counted them by 1s. I ended up with 282, but I'm not sure that's right.

Teacher: Why do you think that?

Simon: Everyone else got 310 or 320 and also I kept losing track of the counting so I might have skipped a number or something.

Juanita: I counted by 1s, too. It took a long time.

Teacher: How many of you used a strategy similar to Juan or Juanita's? [Many students raise their hands. Some comment that they made groups of ten but counted by 1s.] We've heard a few different strategies. Are there any others?

Paige: I thought that since everyone had five fingers on each hand, I would count by 5s. First, I tried to look at the people in the class and count, but I kept forgetting who I counted. So, I used a class list and I made two marks next to each person's name. That was for each of their hands. Then, I just counted by 5s. I said, 5, 10, 15, 20, 25, 30, 35, 40 for every mark. And I got 320.

Teacher: Paige, I know that you got a little stuck when you reached 100. Can you explain what you did?

Paige: I got stuck and you helped me. So, I drew a line under the name where I had 100. That was at Henry. Then, I started over again and counted to 100 again and drew a line under that name. Then, I just counted what was left. [She shows her class list to the group.]

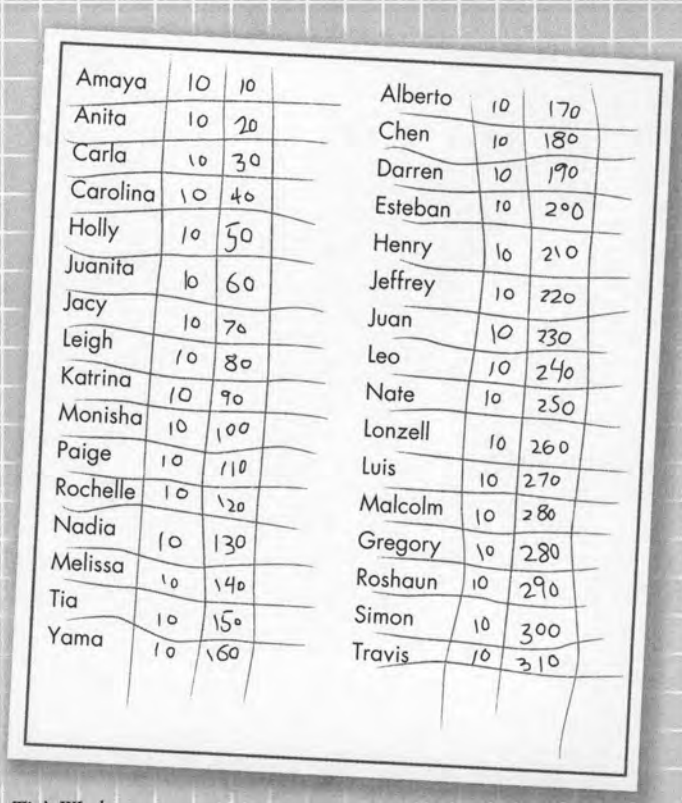
Teacher: You counted by groups of five, and then you grouped those fives into groups of 100. That's similar to what Melissa did when she made smaller groups into bigger groups as a way of keeping track. I'm noticing that most of you either counted by 1s or by groups of five or ten. Why did you choose those numbers?

Nate: [laughing] Because for most people, that's what fingers come in. You have one finger, or five fingers on one hand, or ten fingers in all.

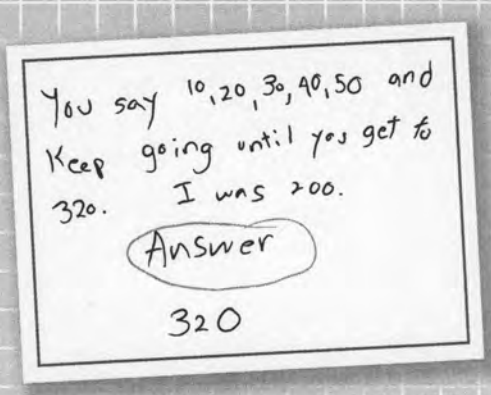
Tia: It wouldn't make sense to count by 4s or 6s, especially if you made towers of ten.

Juan: You could count by other numbers, except it would be hard to keep track.

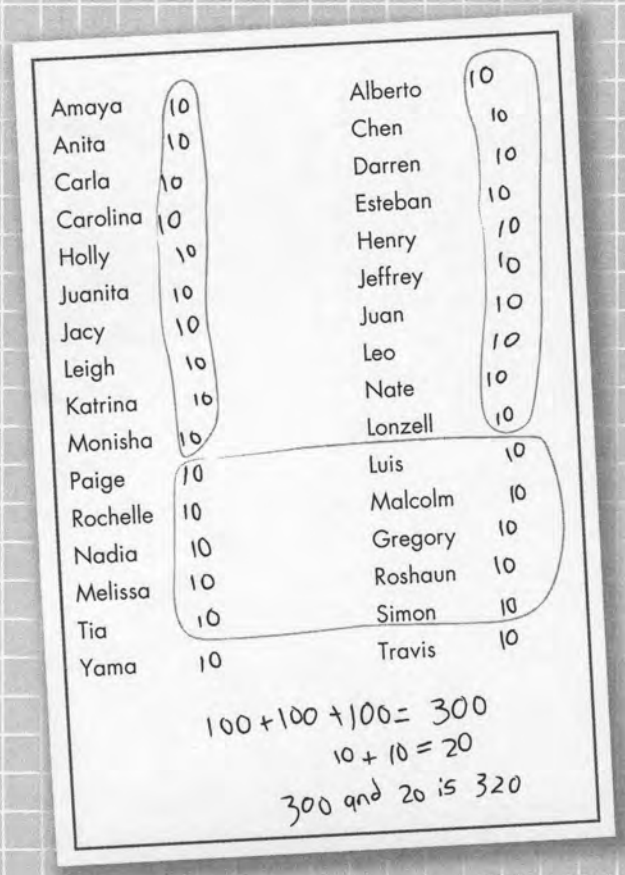
Juanita: And I even counted by 1s because that's easiest for me, but it was hard to keep track.



Tia's Work



Nate's Work



Melissa's Work