

Dialogue Box

What Went Wrong?: Common Errors That Occur When Students Write the Numbers

A teacher noted several common errors as she watched students work on their counting strips. For this discussion, she records three sequences of numbers that represent those errors. Although she asks students to correct each sequence, the emphasis of the discussion is on why someone might have made the errors.

| | | |
|----|----|----|
| 14 | 31 | 28 |
| 15 | 32 | 29 |
| 17 | 33 | 40 |
| 18 | 43 | 41 |
| 19 | 53 | 42 |
| | 36 | 43 |
| | 37 | |

Teacher: I've been looking at your counting strips, and I copied on the board some things that went wrong. What could have happened in the first strip?

Keena: A number is missing.

Teacher: Some people are so excited about writing numbers that they are leaving numbers out. Can someone show us what's missing?

Teo comes to the board and writes 16 between the 15 and 17.

Teacher: What happened in the second example?

Felipe: 53 and 43 are wrong.

Teacher: What do you think happened?

Felipe: They (the numbers) should be in the 30s.

Teacher: What do you think this person was thinking?

Nicky: They went so fast. They put the wrong numbers.

Allie: In those two [pointing to 43 and 53] the 3 should be in front.

Deshawn: They wrote it the opposite way.

Teacher: Who wants to show us how they think it should be?

William writes 34 next to the 43, and Deshawn writes 35 next to the 53.

Teacher: Let's look at the last example.

Vic: It should be 38 and 39.

Teacher: What do you think happened?

Paula: They skipped 10 numbers, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39.

Vic: They could have started at 40, and then counted back wrong.

Teacher: OK, so Vic thinks they skipped the 30s when they counted back, and Paula thinks they skipped the 30s when they counted forward. What could they think about for next time?

Paula: It goes 20s, then 30s, then 40s.

Keena: If you go higher and don't know your numbers, you don't have to skip them, you can ask a friend or look it up on the number line.

Another thing the teacher has noticed is that many students are unsure about how to write numbers greater than 100. Because there are varying ideas within the class, the teacher decides to pursue this topic in another brief discussion about counting strips. She organizes the class in groups of

4 and asks them to work together to write the number she says. After each group has written the number, she posts the responses on the easel so everyone can see the different ideas. The teacher starts by asking each group to write the number 102.

The five groups write these numbers:



Sample Student Work

Teacher: We had different ways to write 102. Which way do you think is correct?

Many: Ours!

Felipe: [pointing at 1002] If you are saying 100 and 2, you have to write 100 and the 2.

Seth: No, you don't need to write all 100. If 100 and 1 is this [writes 101], then 100 and 2 is going to be this [points to 102].

Teacher: Let's think about this with a smaller number.

The teacher writes the number 20 on the board and asks students its name. They respond easily. She does the same with 25.

Teacher: I'm wondering about Felipe's idea. If this number is 25, do we need to write the 20? Should it be like this [writes 205]?

There is some discussion in the small groups, but children are calling out, "No!"

Teacher: Let's try another number, 115.

The 5 groups write these numbers:



Sample Student Work

Tamika: Is this [pointing to 10015] 100 and 15 or 1,000 and 15?

Diego: I think this [pointing to 1015] is 115!

Teacher: How can we tell which is which?

Seth: I have an idea. If 102 has 3 numbers, then 115 has to have 3 numbers.

Lyle: Yes, we don't need to write the entire 100. The 1 tells you that it is 100 and then you write the 15.

Teacher: OK, think about that when you write this next number, 111.

Students at this age are learning the oral and written counting sequences, and understanding how these written and spoken symbols represent quantities. The process is a complex one, particularly after the boundary of 100 has been crossed. This teacher knows from past experience that learning to write the numbers in sequence correctly takes time. She plans to provide further opportunities for students to respond to the challenge of how to write larger numbers.