In the previous class period, students had begun to work by themselves and in small groups on several problems that were written on the board. Class had ended, however, before students had the opportunity to discuss their work as a whole class. This math period begins with a whole-group discussion of the first problem that was written on the board the previous day: “Which is more 4/4 or 4/8?”

12:58:22

Ball: Would somebody like to talk about um what they think about this--which is more? Four fourths or four eighths? We may have discussed this, but let's talk about it one more time anyway. Lin? (pause) The question is which is more?

Lin: Oh.

Ball: Would you like to talk about what you think?
And this is *(looks up at the problem on the board)* four eighths. *(colors in four sections)*

Ball: Kip.

Lin: And that's four eighths because I split it in eight pieces and I took four out of it. And this is a whole one and that's only one half...

Ball: Could you speak up just a little? You finished your drawing--could you go through your explanation one more time more loudly.

Lin: Okay. I took--ah, this one, I think, is four fourths *(points to her drawing)* and I think this one *(the four fourths)* is bigger because um four eighths, that's only like a half and this *(the four fourths)* is a whole piece.

1:01:24

Comments? Let's get more people besides Bernadette thinking about what they think about Lin's solution? Other people's ideas too? David, what do you think?

David: I agree.

Ball: You agree with that?

David: Yeah, because, um, ah if, if she, if she put um, I think four, four eighths, um, if you make, um like eight lines then I disagree with her.

Ball: What would you disagree with if you made what?

David: Um, if you make eight lines.

Ball: For which one?

David: Four eighths.

Ball: Four eighths? How many lines does she need to make?

1:02:00

David: Seven.

Ball: How do you know that?

David: Because if um--when we talk about it and when I, when I put like,...I don't know...I put six, um--I put six lines instead of five...

Ball: Are you talking about Shea's conjecture when you make, to make some number of pieces you cut one less?

David: Yeah.

Ball: Or you make one less line?

David: Yeah.

Ball: Okay. So she made seven lines to make eight pieces. *(To Lin)* is that--do you agree with that?

Lin: Yeah.

Ball: Other people want to comment? Bernadette?

Bernadette: I can do it with the number line...

David: I would like to see it with the number line. Let's see it for a minute--if we have--let me draw you a number line and you can work on it. Let's see if other comments with the, with the um, representation that Lin used? *(draws a line for*
Bernadette on the chalk board.) Here's a line, you can set it up how you want it.

Bernadette: (goes up to the board and starts drawing)

Ball: Other people want to comment on Lin's representation or what you think about what she decided? Kevin?

Kevin: I agree.

Ball: You agree with that? Did you use a similar method to figure it out or did you do something different?

Kevin: Well, first I did something different and then I was wrong.

Ball: Uh huh. Do you remember what you did or--

Kevin: Yeah. I, I mean--first I made the same thing that she did, then I made the other piece longer, so I thought they were supposed to be the same size.

Ball: Oh, very interesting. Did people hear Kevin?

Student: Mm-mm.

Ball: It's extremely important what Kevin just said. Could you say it again? That would be very helpful to some people in this class. Listen to Kevin about what he did wrong the first time, he says.

Kevin: I made the first part the same as she did then I made four eighths longer than--a longer piece.

Ball: Like this? Can I try what I think you're saying? You made a four fourths like this (draws:)

Ball: And when he made the four eighths (draws:)

Ball: Is that what you did? And so then when you shade it in, if you shade in four fourths (shades in the four fourths) and over here you have to shade in how many?

Students: Four

Ball: (shades in the four eighths)

Ball: What happens when you try to compare the pictures?

Kevin: They're the same.

Ball: Tiffany?

Tiffany: I put the same thing.

Ball: What's--what does Kevin--what do you think is wrong? Kevin said he decided that was wrong. What do you think is wrong about that?
### Class list as of May 1990

<table>
<thead>
<tr>
<th>NAME</th>
<th>GENDER</th>
<th>RACE</th>
<th>COUNTRY</th>
<th>ENGLISH PROFICIENCY</th>
<th>HOW LONG AT THIS SCHOOL&lt;sup&gt;0&lt;/sup&gt;</th>
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<tr>
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<sup>0</sup><em>NOTE</em>: This column reflects the length of time the child had been in this school as of 05/90. No one had been in this class prior to September 1989, the beginning of the school year.