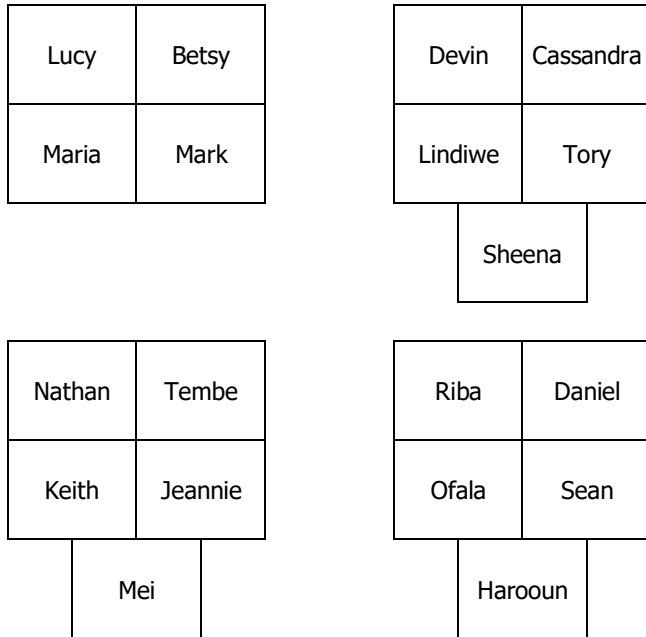


Transcript: Four-fourths and Four-eighths

Third grade, Public Elementary School Michigan
Monday, May 21, 1990

Seating Arrangement



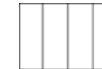
In the previous class period, students had begun to work by themselves and in small groups on several problems that were written on the board. Class had ended, however, before students had the opportunity to discuss their work as a whole class. This math period begins with a whole-group discussion of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

12:58:22

- 1 Teacher: Would somebody like to talk about what they think
- 2 about this? Which is more? Four-fourths or four-
- 3 eighths? We may have discussed this, but let's talk
- 4 about it one more time anyway. Mei?
- 5 Mei: Could you repeat the question?
- 6 Teacher: The question is, "Which is more?"
- 7 Mei: Oh.
- 8 Teacher: Would you like to talk about what you think?
- 9 Mei: I think it's four-fourths.
- 10 Teacher: Could you explain?
- 11 Mei: Can I show it on the board?
- 12 Teacher: Yup. Betsy and Mark, would you mind looking at what
- 13 Mei's doing? And Devin, you're looking in the wrong
- 14 direction to see what Mei is doing.

12:59:33

- 15 Mei: *(draws a rectangle on the board and divides it into*
- 16 *four pieces:)*



- 17 You see, all of this is four-fourths because we have
- 18 four pieces and you want to take four pieces away. So
- 19 it will be taking all of these. Whoops! *(drops the*
- 20 *chalk, picks it back up, and shades in all four*
- 21 *sections:)*



22 (then draws another rectangle the same size as the
23 first and divides it into eight:)



24 (colors in four sections)



25 Teacher: Tembe.
26 Mei: And that's four-eighths because I split it in eight pieces
27 and took four out of it. And this is a whole one and
28 that's only one-half...
29 Teacher: Could you speak up just a little? You finished your
30 drawing. Could you go through your explanation one
31 more time more loudly?
32 Mei: Okay. I took this one, I think. It's four-fourths, and I
33 think four-fourths is bigger because four-eighths,
34 that's only a half and this is a whole piece.

1:01:17

35 Teacher: Comments? Let's get more people besides Betsy
36 thinking about what they think about Mei's solution.
37 ...For some other people's ideas too? Daniel, what do
38 you think?
39 Daniel: I agree.
40 Teacher: You agree with that?
41 Daniel: Yeah, 'cause- If she put- I think four-eighths- if you
42 make like eight lines then I disagree with her.
43 Teacher: What would you disagree with? If you made what?
44 Daniel: If you make eight lines.
45 Teacher: For which one?
46 Daniel: Four-eighths.

47 Teacher: Four-eighths? How many lines does she need to
48 make?
49 Daniel: Seven.
50 Teacher: How do you know that?
51 Daniel: 'Cause if- When we talk about it and when I put like...
52 I don't know... I put six lines instead of five...
53 Teacher: Are you talking about Sean's conjecture when you
54 make- to make some number of pieces you cut one
55 less?
56 Daniel: Yeah.
57 Teacher: Or you make one less line?
58 Daniel: Yeah.
59 Teacher: Okay. So she made seven lines to make eight pieces.
60 Is that- Do you agree with that?
61 Mei: Yeah.
1:02:33
62 Teacher: Other people want to comment? Betsy?
63 Betsy: I can do it with the number line...
64 Teacher: I would like to see it with the number line. Let's see it
65 for a minute- If we have- Let me draw you a number
66 line. You can work on it. Let's see if other comments
67 with the representation that Mei used? (draws a line
68 for Betsy on the chalk board) Here's a line. You can
69 set it up how you want it. Other people want to
70 comment on Mei's representation or what you think
71 about what she decided? Keith?
72 Keith: I agree.
73 Teacher: You agree with that? Did you use a similar method to
74 figure it out or did you do something different?
75 Keith: Well, first I did something different and then... I was
76 wrong.
77 Teacher: Do you remember what you did or-

78 Keith: Yeah. I made- First I made the same thing that she
79 did, then I made the other piece longer, so I thought
80 they were supposed to be the same size.

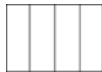
81 Teacher: Oh, very interesting. Did people hear Keith?

82 Student: Nuh-uh.

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

87 Keith: I made the four-fourths the same as she did then I
88 made four-eighths longer than- A longer piece.

89 Teacher: Like this? Can I try what I think you're saying? You
90 made a four-fourths like this. (*draws:*)



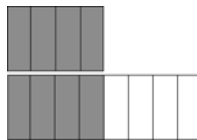
91 And he- When he made the four-eighths- (*draws:*)



92 Is that what you did? And so then when you shade it
93 in, if you shade in four-fourths- (*shades in the four-*
94 *fourths*) And over here you have to shade in how
95 many?

96 Students: Four.

97 Teacher: (*shades in the four eighths*)



98 What happens when you try to compare the pictures?

99 Keith: They're the same.

100 Teacher: Tory?

101 Tory: I put the same thing.

102 Teacher: What's- What does Keith- What do you think is wrong?
103 Keith said he decided that was wrong. What do you
104 think is wrong about that?

1:04:17

1:24:55

105 Teacher: What would you say if a fourth grader said to you,
106 "Four-fourths is the same amount as four-eighths
107 'cause they're both four pieces?" How would you
108 convince them?

1:25:05

NAME	GENDER	RACE	COUNTRY	ENGLISH PROFICIENCY	HOW LONG AT THIS SCHOOL ¹
Lindiwe	M	African American	U.S.A	native speaker	5 months
Nathan	M	White	Ethiopia	fluent	almost 4 years
Betsy	F	White	Canada	native speaker	9 months
Cassandra	F	African American	U.S.A.	native speaker	almost 2 years
Daniel	M	Asian	Indonesia	developing	almost 4 years
Jeannie	F	White	U.S.A.	native speaker	almost 4 years
Keith	M	African American	U.S.A.	native speaker	5 months
Tembe	M	African Black	Kenya	fluent	almost 4 years
Mei	F	Asian	Taiwan	fluent	almost 3 years
Lucy	F	White	U.S.A.	native speaker	almost 4 years
Maria	F	Latina	Nicaragua	beginning	9 months
Mark	M	White	U.S.A.	native speaker	almost 3 years
Ofala	F	African Black	Nigeria	fair	almost 4 years
Devin	M	White	Nepal	beginning	a little over 1 year
Riba	F	White	Egypt	good	almost 4 years
Haroun	M	Asian	Indonesia	developing	almost 2 years
Sean	M	White	U.S.A.	native speaker	almost 3 years
Sheena	F	African American	U.S.A.	native speaker	9 months
Tory	F	White	U.S.A.	native speaker	5 months

¹*NOTE:* This column reflects the length of time the child had been in this *school* as of 05/21/90. No one had been in this *class* prior to September 1989, the beginning of the school year.