8.1.308	T/R 2:	You could have another sheet of paper. Ok, this time I want you to compare. [talk about room on sheets] This time I want you to compare two thirds and three fourths.
8.1.309	Michael:	Two thirds and three fourths.
8.1.310	Brian:	Ok.
8.1.311	T/R 2:	Decide which one is bigger, and by how much, if in fact one is bigger.
8.1.312	Brian:	I'm going to use my big model that I made
8.1.313	Michael:	Ok, so we should put, I'm going to put my name
8.1.314	T/R 2:	In fact you will want to put those two fractions down so that you remember what they are.
8.1.315	Brian:	I'm going to use my big model that I made
8.1.316	T/R 2:	Ok.
8.1.317	Michael:	I know I made, we, we, me and him made this huge model. I made another one. I made one of thirty. This one's..
8.1.318	Brian:	We made thirty - three of those, but we couldn't make fourths.
8.1.319	T/R 2:	Ok, so the problem is two thirds, compare two thirds and three fourths, which is bigger and by how much
8.1.320	Brian:	Two thirds
8.1.321	Michael:	Wait a minute, we have to change our -
8.1.322	Brian:	Three fourths
8.1.323	Michael:	We have to change this
8.1.324	Brian:	Oh, why don't we just make this one, the old one?
8.1.325	Michael:	Two thirds [makes noise]
8.1.326	Brian:	But we can't, we can't make fourths with this.
8.1.327	Michael:	Yes we can.
8.1.328	Brian:	Can we?
8.1.329	Michael:	Yeah
8.1.330	Brian:	Oh yeah, yeah
8.1.331	Michael:	We can use the light greens
8.1.332	Brian:	Yeah, Hang on, ok, k, what was it, three fourths compared to… wait, what was it?
8.1.333	Michael:	It was, which, um, which is bigger, two thirds or three fourths, by how much? Two thirds is bigger
8.1.334	Brian:	By two thirds,
8.1.335	Michael:	No, not by two thirds
8.1.336	Brian:	No, no, wait, wait
8.1.337	Michael:	No! Wait! Three fourths is bigger than two thirds, see?
8.1.338	Brian:	I know, I know
8.1.339	Michael:	By one sixth!

8.1.340	Brian:	Two thirds-
8.1.341	Michael:	By one sixth, see?
8.1.342	Brian:	Wait, wait, wait, what was the question? Two thirds, two thirds and three fourths?
8.1.343	Michael:	No, which is bigger, two thirds or three fourths?
8.1.344	Brian:	Let me write it down, let me just write it down.
8.1.345	Michael:	Which is bigger, two thirds or three fourths
8.1.346	Brian:	Ok so it's two thirds
8.1.347	Michael:	or three fourths
8.1.348	Brian:	Two thirds
8.1.349	Michael:	by how much
8.1.350	Brian:	or three fourths
8.1.351	Michael:	Yeah, [writing] by how much? Ok, I'm done. Look at this.
8.1.352	Brian:	Question mark
8.1.353	Michael:	Oh! Ok, so it's bigger by
8.1.354	Brian:	Wait a minute let me make two thirds, let me make two thirds
8.1.355	Michael:	What the… It's bigger by one twelfth
8.1.356	Brian:	Why did you make that model? Ok, now it's three fourths, let me just copy this down.
8.1.357	Michael:	Don't copy it down yet. We may be wrong
8.1.358	Brian:	No, no no, I'm copying down two thirds and three fourths
8.1.359	Michael:	Ok, ok, so will I.
8.1.360	Brian:	Good we have… Ok [pause] Ok, now three fourths.
8.1.361	Michael:	Three fourths. [other students talking, Jessica's model]
8.1.362	Brian:	How is it big.. how much is it bigger by?
8.1.363	Michael:	It's bigger by a little white thing. But what do we call the white thing?
8.1.364	Brian:	A twelfth
8.1.365	Michael:	A twelfth?
8.1.366	Brian:	Yeah.
8.1.367	Michael:	A twelfth
8.1.368	Brian:	Yeah, yeah, wait, yeah, that is twelve
8.1.369	Michael:	Yeah, it's a twelfth
8.1.370	Brian:	And those are the thirds, and these are the fourths.
8.1.371	Michael:	Jeez. We're getting all these different answers - I thought they'd be, I thought we'd get the same answer
8.1.372	Brian:	What about yesterday, did you write "yes I think it's possible to get different answers for different models" so did I but I didn't write down, but I didn't write down what we did here. I wrote yes and I

		did a different one. And then, I was just about to say no. I was just about to say that. Um, by one twelfth.
8.1.373	Michael:	See? One, two, three, four, five, six, seven, eight, nine, ten eleven, twelve.
8.1.374	Brian:	I'm putting that right there.
8.1.375	Michael:	By one twelfth, right?
8.1.376	Brian:	Good.
8.1.377	Michael:	Ok, now the white dude
8.1.378	Brian:	Look, I just, like, put my model right on top of what I draw.
8.1.379	Michael:	There, there's my model
8.1.380	Brian:	Oh wait wait wait.
8.1.381	Michael:	What are doing the pointer for? [intercom interrupts]
8.1.382	Brian:	Which step. A twelfth extra.
8.1.383	Michael:	Oh, One twelfth extra?
8.1.384	Brian:	Yeah, so look, I just put my um, I just put the Cuisenaire rods right on top of what I just did.
8.1.385	Michael:	Oh, I made it too small.
8.1.386	Brian:	Look, I just put my Cuisenaire rods right on top. Look, see?
8.1.387	T/R 2:	How are we doing?
8.1.388	Brian:	I just did um, I just figured out that three-fourths is bigger than two-thirds
8.1.389	Both	By one twelfth
8.1.390	Brian:	Cuz one twelfth is like extra, it's like right there, see
8.1.391	T/R 2:	Oh
8.1.392	Brian:	And I put it right there and I pointed to it, and I wrote one twelfth extra.
8.1.393	T/R 2:	Ok, so I can compare the two fractions here. What was the whole here, what were we calling the one here, the whole train?
8.1.394	Brian:	[interjecting] The whole is, this is the whole, well this was the whole and there was one fourth, it used to have been a fourth right here but I guess we could change the
8.1.395	T/R 2:	So the train
8.1.396	Brian:	It'd be nine, right there.
8.1.397	T/R 2:	That was one
8.1.398	Brian:	Yeah
8.1.399	T/R 2:	That's what you're calling one
8.1.400	Brian:	Well, I just did that right now. Cuz the whole was really supposed to be this.
8.1.401	T/R 2:	Ok, so this was one

8.1.402	Brian:	Yeah, this was supposed to be one, but it said two thirds, so we took this one out and we put that in there to make it equal up to the three fourths
8.1.403	T/R 2:	Ok so then this was one.
8.1.404	Brian:	Yeah
8.1.405	T/R 2:	Ok, so you want to add that as well, maybe you can even trace it in on the top here, or…
8.1.406	Brian:	I guess I could put it on the bottom.
8.1.407	T/R 2:	Or the bottom, and label it one. K, so this was one, purples turned out to be thirds, and greens turned out to be fourths.
8.1.408	Brian:	Well but what should I do, should I just put another one here, like that? Because, cuz I drew something under it
8.1.409	T/R 2:	No that's ok, I understand what you did here. All I need to see now is what one was. What you called one
8.1.410	Brian:	Oh, oh.
8.1.411	T/R 2:	That's all I need to understand about your problem
8.1.412	Brian:	Should I use this? Should I use this? Even that is one whole to these, or should I use the one right here?
8.1.413	T/R 2:	I don't know, it's a good question, What do you think?
8.1.414	Brian:	How it was originally the one whole only I had to take this one out to make it two thirds, that's what I was thinking
8.1.415	T/R 2:	What do you think? What's your instinct what we should be using?
8.1.416 47:10	Brian:	Well, I think I probably should use this cuz this is changing the one whole, because, because that, we just took, we just took out um one third to make the, to make this problem, and this wasn't the real third, this wasn't, I mean the real whole anyway, so I guess I should just use this.
8.1.417	T/R 2:	Yeah you'd be changing the problem wouldn't you?
8.1.418	Brian:	Yeah
8.1.419	T/R 2:	Ok, since all of your fraction names came from what your number name one was, you want to go back to that.
8.1.420	Brian:	So should I just copy this down?
8.1.421	T/R 2:	That would help me, yeah, that would help me to remember, and remember, put the colors inside, too, so I can remember
8.1.422	Brian:	Oh, should I put it just on the side?
8.1.423	T/R 2:	You could just put it on the side. Yeah. I know they don't always fit.
8.1.438	V1:	You've done the three quarters and two thirds one
8.1.439	Michael:	We're doing it
8.1.440	Brian:	We did it. Yeah, I just finished mine, I think.

8.1.441	V1:	You, did? Oh, you're very neat.
8.1.442	Brian:	Ok, um, it said two thirds and three fourths.
8.1.443	V1:	mmm hmmm
8.1.444	Brian:	and um and three fourths was bigger by one twelfth and um
8.1.445	V1:	and how did you know that was a twelfth
8.1.446	Brian:	well because I put mine [side comment]
8.1.447	Brian:	We didn't have one
8.1.448	Michael:	Yeah we have a couple
8.1.449	V1:	Oh, I didn't take all of them, oh you even have…. Here's a whole bunch of them hiding under there
8.1.450	Brian:	So you put this right there
8.1.451	V1:	right
8.1.452	Brian:	and
8.1.453	V1:	and you said it was one white square bigger
8.1.454	Brian:	Yeah
8.1.455	V1:	And then how'd you know how much a white square was?
8.1.456	Michael:	Because we put it up to the one whole which was
8.1.457	Brian:	This was the one whole, this was the one whole
8.1.458	Michael:	And we lined twelve of them up
8.1.459	Brian:	These were the thirds
8.1.460	Michael:	Well, Here's another one.
8.1.461	Brian:	These were the thirds, I mean, um, yeah, the thirds,
8.1.462	V1:	Right
8.1.463	Brian:	And these were the fourths
8.1.464	V1:	The light green ones were the fourths
8.1.465	Brian:	Yeah and so and this is and all this and this is and the one whole and the um like when we line them up down into steps the orange was a ten and we added and the red was a two and we add that together and that was a twelve
8.1.466	V1:	Ok.
8.1.467	Brian:	That was twelve,
8.1.468	V1:	Makes sense.
8.1.469	Brian:	And so, and so this is, if you take twelve of these, all the way in here, put them against here, twelve of them, you could see that there are twelve of them there and it equals up to the one whole
8.1.470	V1:	So one of them
8.1.471	Brian:	Yeah, and they're all twelfths
8.1.472	V1:	I see, because twelve of them equal the whole one
8.1.473	Brian:	Yeah.
8.1.474	V1:	I see, ok, and then since it's only one little triangle bigger,

8.1.475	Brian:	Yeah
8.1.476	V1:	One little square, uh,
8.1.477	Brian:	Cube
8.1.478	V1:	Thank you, one cube bigger, then that's one twelfth
8.1.479	Brian:	Yeah
8.1.480	V1:	Ok, that makes sense to me.
8.1.481	Brian:	And then I made the whole down here.
8.1.482	V1:	Now, can you make another model for this?
8.1.483	Brian:	Uh, yeah, I think so.
8.1.484	V1:	Ok, you're just going with the flow, huh, you're like yeah, sure why not, I can make another model, sure I can do anything. Oh, ok, perfect. I'm very impressed. [To Michael] Have you drawn that?
8.1.485	Michael:	Yeah
8.1.486	V1:	And you agree with him, right?
8.1.487	Michael:	Yeah.
8.1.488	V1:	You're in total agreement with him
8.1.489	Michael:	yes
8.1.490	V1:	You'll go wherever he goes. [Michael says yes again and laughs]. Ok. Now try and get another model
8.1.491	Brian:	Ok, um, think of another model. Would this be the same? Would this be the same length? Could we do this, even though it's the same?
8.1.492	Michael:	Mmm, I doubt it. Why don't we try…
8.1.493	Brian:	How about the black, try the black
8.1.494	Michael:	The dark green is gonna be the thirds
8.1.495	Brian:	Wait, wait, how about this?
8.1.496	Michael:	We need some fourths. How about the browns?
8.1.497	Brian:	How 'bout…how 'bout the browns? How about this one? Um… Here,
8.1.498	Michael:	I'm trying to figure something. Nope, that won't work either
8.1.499	Brian:	Look - it works! This works
8.1.500	Michael:	So what's gonna be the, those? Those can't be the fourths.
8.1.501	Brian:	I know
8.1.502	T/R 2:	Those of you who are finishing up recording something for me so that I can share these with Dr. Maher, please make sure that your name is on each page that you've done and make sure you've written what the problem or the question was at the top of the page, these look wonderful I'm going to share these with her this afternoon when I see her.

.