

<p>Description: Clip 4 of 4, Testing the doubling conjecture Parent Tape: Building Large Models to Show Equivalence: An Exploration (classroom view) Date: 1993-10-07 Location: Colts Neck Elementary School Researcher: Professor Carolyn Maher</p>	<p>Transcriber(s): Yankelewitz, Dina Verifier(s): Yedman, Madeline Date Transcribed: Spring 2009 Page: 1 of 6</p>
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- 9.1.405 CT: I don't want to break your train of thought, but what's happening here?
- 9.1.406 Erik: Well, see, we took the three oranges and the dark green to be one, and then the four blues to be um, the fourths, and down here, we took three blues, and then, uh, nine whites, and we took three whites which would go to that one, so we're making a new rod because if you had one it'd be an orange. If you had two other ones it'd be bigger than an orange so we're making a new rod there and we do the same here and the same here, so we're making new rods for thirds.
- 9.1.407 CT: Ok.
- 9.1.408 Erik: Understand?
- 9.1.409 CT: Yes, I do.
- 9.1.410 Erik: [laughs] That's the only problem. Actually, no, I do! He was calling two browns, two blacks, and two blues, a one
- 9.1.411 David: Yeah, because that was, that was the other problem.
- 9.1.412 Erik: Yeah, and then the light greens are the twelfths and those are the
- 9.1.413 David: I think that would be sixteen, though.
- 9.1.414 Erik: Yeah, and the reds would be the twenty-four, twenty-fourths, the reds would be the twenty-fourths, and the white would be the forty-eighths.
- 9.1.415 T/R 1: [maybe to someone else?] What did you get the difference to be?
- 9.1.416 Erik: Because he, he just doubled everything.
- 9.1.417 Meredith: What are the thirds? What are the fourths?
- 9.1.418 Erik: Exactly.
- 9.1.419 David: I'm just working on mine.
- 9.1.420 Erik: He's working on that. David, that's basically what we came here for.
- 9.1.421 CT: Yeah, I do, that's very interesting! Do you understand how you would get fourths and thirds out of that?
- 9.1.422 Erik: David, isn't this basically what we came for?
- 9.1.423 Alan: He's getting it lined up, trying to get it lined up.
- 9.1.424 Erik: Yeah, he's messing up. So basically, we don't need this, all this. We could just push that aside, and work with David's. Isn't this basically what we came here for, David?
- 9.1.425 David: Yeah, I know, that's why-
- 9.1.426 Erik: [laughs] And everyone is trying to make another model!
- 9.1.427 David: I know cuz I told-
- 9.1.428 CT: Basically you came here for what?
- 9.1.429 Erik: We basically came to discuss David's original model.
- 9.1.430 CT: And then they built something else?

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- 9.1.431 Erik: Yeah, we forgot the whole point why we came here.
- 9.1.432 David: Yeah, I told everybody, and then she said to go over there and build David's model.
- 9.1.433 Erik: And we lost the point for some reason.
- 9.1.434 CT: Ok, but I don't think David did this.
- 9.1.435 Erik: No, David's like here, let me do this.
- 9.1.436 CT: David, how about you explain to me what you're doing so [inaudible] your thinking.
- 9.1.437 David: Well, before Meredith built this other thing and then she had the reds were one twelfth and then the whites were one twenty-fourth, but then
- 9.1.438 Erik: We built that, me and alan built that and then they did it, and then
- 9.1.439 52:53 David: Meredith did too, but then, uh, so then, uh, she thought to think of a bigger model, then I thought that then maybe the greens would be something like one twelfth, but then we figured out that would be sixteenths, then I put them up there
- 9.1.440 CT: Alright
- 9.1.441 David: And
- 9.1.442 Erik: No it wouldn't this one still has some room. I think.
- 9.1.443 David: No, it's just that this [inaudible]. Well um, and then I thought the reds would be one twenty-fourth and the whites might be one forty-eighth. Cuz I just doubled it.
- 9.1.444 CT: Did it work out? Did it work out?
- 9.1.445 David: What?
- 9.1.446 CT: Did it work out? I mean, did you, did you find what you thought you would find?
- 9.1.447 David: Well, not really, because this one was one sixteenth, um, one sixteenth.
- 9.1.448 CT: And the reds came out to?
- 9.1.449 David: I was working on that right now.
- 9.1.450 CT: Oh, ok.
- 9.1.451 Erik: What about the purples? How about the purples? The purples could come out to be.
- 9.1.452 David: Yeah they might be the-
- 9.1.453 Erik: I think the purples would be, the purples would probably be twelfths.
- 9.1.454 David: Alright, so now,
- 9.1.455 CT: This is so interesting, where are you going with this, though? Where are you going with this? I mean, this is very interesting, I'm enjoying this very much. You put a lot of work into it.
- 9.1.456 Alan: This isn't going to fit on notebook paper.

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- 9.1.457 CT: We can take, listen, we can take this and paste it together and put your work on
- 9.1.458 Erik: Well, it barely even fits on this!
- 9.1.459 CT: Well, you have more than one piece there, so there's no problem. We can do that.
- 9.1.460 Erik: I mean, if it doesn't fit on this, of course it can't fit on a single piece of notebook paper, but if we put a couple of pieces together
- 9.1.461 CT: It's ok, we can set up a model. What should we?
- 9.1.462 David: I think, maybe I counted wrong but that, but I counted it to be one twenty-third. Let me count again.
- 9.1.463 CT: Look and see. See if you have it even.
- 9.1.464 Erik: One two three, four, one two three
- 9.1.465 T/R 1: They don't look lined up there, David. David, I'm not convinced they're lined up.
- 9.1.466 Erik: Eleven twelve thirteen fourteen fifteen sixteen
- 9.1.467 Alan: Dave, you have something wrong, you need another
- 9.1.468 Erik: Twenty-three. You need to line them up.
- 9.1.469 Alan: Here, you've got, yeah, you need another one of that.
- 9.1.470 T/R 1: How about a ruler, would that help? The yardstick, behind the board there? A yardstick might help.
- 9.1.471 Erik: Yeah [gets up].
- 9.1.472 T/R 1: See it over there?
- 9.1.473 Alan: Now, push, push, push the reds down.
- 9.1.474 Erik: Just push em in, and then you can get one more.
- 9.1.475 Alan: There.
- 9.1.476 Erik: Now put one more on.
- 9.1.477 Alan: Take a yardstick and flatten the whole thing out.
- 9.1.478 Erik: What do you mean, flatten it out?
- 9.1.479 Alan: It's all wavy.
- 9.1.480 Meredith: Yo!!! I just worked [inaudible]
- 9.1.481 Erik: No, I mean, it's not ok, cuz, no offense Meredith, but isn't this called the major model we're working on?
- 9.1.482 David: That's what we're doing.
- 9.1.483 Meredith: That's why we came over here.
- 9.1.484 Alan: Ok. Pointless.
- 9.1.485 Erik: Nine, ten, eleven, twelve, thirteen, fourteen fifteen, oops, sorry. I just think the purples
- 9.1.486 Alan: Is that enough?
- 9.1.487 Erik: One two three four five six seven eight nine ten
- 9.1.488 David: This is going to be twelve.

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- 9.1.489 Erik: Eleven Twelve
- 9.1.490 David: I know it. The purples
- 9.1.491 Erik: Five six seven eight nine ten eleven twelve. There we go.
- 9.1.492 Meredith: [Alan begins to straighten the model with the yardstick] No, that side's
- 9.1.493 Erik: You don't really need- Wait a minute, now I just gotta do the thirds and fourths.
- 9.1.494 David: Don't touch anything now.
- 9.1.495 Erik: One two three four five six
- 9.1.496 David: Don't touch anything. [David gets up and leaves view of camera for a minute and returns] I think the ones would be one forty-eighth
- 9.1.497 Erik: Wait, four, eight twelve, just count by fours, cuz.
- 9.1.498 David and Erik: Two four six eight ten twelve fourteen sixteen eighteen twenty twenty-two twenty-four twenty-six twenty-eight.
- 9.1.499 David: Thirty.
- 9.1.500 Erik: Two four six eight ten twelve fourteen sixteen eighteen twenty twenty-two twenty-four twenty-six twenty-eight thirty, thirty-two, thirty-four, thirty-six, thirty-eight, forty, forty-two, forty-four, forty-six, forty-eight. Yep, forty-eight.
- 9.1.501 T/R 1: Are you surprised that it's forty-eight?
- 9.1.502 David: No, that's what I thought it would be.
- 9.1.503 T/R 1: That's what you guessed? In other words, you were able to build what you thought, what you predicted. Are you going to be able to write this up?
- 9.1.504 David: Um, well, not draw, maybe not
- 9.1.505 T/R 1: Maybe sketch it, maybe you want to take some notes on your diagram before it ends. What do you think, Meredith? You think you made another, you made a different model. Ok, you might want to take some notes to sketch it so you remember what you did. So you can start
- 9.1.506 David: Cuz I thought the greens were the purples one twelfth.
- 9.1.507 Erik: So I think what I'm gonna do
- 9.1.508 T/R 1: So you think the purple's one twelfth - is there another name for that purple?
- 9.1.509 Erik: Um, one, one
- 9.1.510 T/R 1: Meredith knows how to find other names for these
- 9.1.511 Erik: One twelfth
- 9.1.512 T/R 1: That's one name, one twelfth. Is there another number name for the purple?
- 9.1.513 Erik: One fourth, no. I mean, uh, what's it called. Wait,

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- 9.1.514 T/R 1: If you were using-
- 9.1.515 Erik: One whole!
- 9.1.516 T/R 1: If, let me ask you this
- 9.1.517 Erik: One whole, one half
- 9.1.518 T/R 1: Don't just guess cuz you're gonna have to prove it to me, Erik. This is my question, to, to Meredith, who likes to come up with different number names and Erik sometimes says on the tape, "I don't know why we have to have more names. I like to have lots of names, frankly. Um,
- 9.1.519 David: Four twelfths.
- 9.1.520 T/R 1: Ok, David thinks four twelfths
- 9.1.521 Erik: One twelfth! One twelfth!
- 9.1.522 T/R 1: We know it's one twelfth, we've proved it's one twelfth and you've proved it's one twelfth.
- 9.1.523 Erik: Four twenty-eighths. I mean, four forty-eighths.
- 9.1.524 T/R 1: Four forty-eighths.
- 9.1.525 Erik: Because the whites would be, the whites would be forty-eighths, and then, and then it takes
- 9.1.526 David: [interjecting]-I didn't mean-
- 9.1.527 Erik: [continuing] Four whites to equal up
- 9.1.528 David: Four twelfths.
- 9.1.529 Erik: Four forty-eighths.
- 9.1.530 T/R 1: You mean four forty-eighths.
- 9.1.531 Erik: I said four forty-eighths.
- 9.1.532 T/R 1: Meredith? You think that makes sense?
- 9.1.533 Erik: Four forty-eighths or
- 9.1.534 Meredith: One twelfth.
- 9.1.535 Erik: One twelfth.
- 9.1.536 T/R 1: So we have one twelfth, we have four forty-eighths. Any other names?
- 9.1.537 Erik: Oh, wait! Oh, yeah! Two, two, two twenty-fourths!
- 9.1.538 T/R 1: Two twenty-fourths.
- 9.1.539 Erik: Two twenty fourths
- 9.1.540 T/R 1: Ok, we have one twelfth, two twenty-fourths, four forty-eighths, anything else? How many different number names and different blocks.
- 9.1.541 Erik: Well, does it have to be the same whole?
- 9.1.542 T/R 1: What do you think?
- 9.1.543 Meredith: It can also be bigger by, um,
- 9.1.544 Erik: Two, or it can be thirds, halves, it could be a

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- 9.1.545 T/R 1: What are green? What's one green?
- 9.1.546 Erik: Those are sixteenths.
- 9.1.547 Meredith: One sixteenth and one forty-eighth.
- 9.1.548 T/R 1: One sixteenth.
- 9.1.549 Meredith: Or one forty-eighth.
- 9.1.550 T/R 1: How did you get sixteenths?
- 9.1.551 Erik: Because there are sixteen that line up to the answer.
- 9.1.552 Meredith: One sixteenth
- 9.1.553 T/R 1: Show me they're sixteen.
- 9.1.554 Erik and Meredith: One two three four five six seven eight nine, ten, eleven, twelve, thirteen, fourteen, fifteen, sixteen.
- 9.1.555 T/R 1: Ok, so the green is one sixteenth. But is the difference between three quarters and two thirds a green?
- 9.1.556 Erik: Is the difference between
- 9.1.557 Meredith: Oh, a green and blue, one forty-eighth.
- 9.1.558 T/R 1: So how would, what number name would you give for the differences between
- 9.1.559 Erik: Also, the, it also could be it would take two of them to equal up to a brown.
- 9.1.560 T/R 1: Well, these are the things I want you to think about and write about. Ok? I think these are good questions that are for you. We're up to seventh grade math already.
- 9.1.561 Erik: Seventh?
- 9.1.562 T/R 1: So I think you could work it out if you worked hard enough.
- 9.1.563 Meredith: Yeah, but I think if you took one sixteenth and one forty -eighth and you put it up to it, it
- 9.1.564 T/R 1: The difference? Oh, so what number name would you give to that?
- 9.1.565 Meredith: Uh, one forty eighth [laughs] I don't-
- 9.1.566 T/R 1: Well, think about it. [to class] Ok. I think we have to clean up