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| Description: Multiple Models to Represent One Half Parent Tape: What is one half? Date: 1993-09-21 Location: Colts Neck Elementary School Researcher: Professor Carolyn Maher | Transcriber(s): Yankelewitz, Dina Verifier(s): Reid, Adrienne, Farhat, Marcelle Date Transcribed: Spring 2009 Page: 1 of 4 |
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| Line | Time | Speaker | Transcript |
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| 1 | | T/R 2 | [To the class] Ok. I want to hear from some people now. I hear some wonderful thinking here. This was not an easy one. Ok, is there somebody who would like to share a solution with me to show me one half of this train which has an orange and a green? To show me something that is one half as long as this orange and green train. Ok, let's see, uh, Andrew? Could you come up and show? If you worked with Mark the two of you can come up and show us? I'd like everybody to watch what they do because if you have a different way of thinking about it, I'd like to see that also. |
| 2 | | Andrew | Well we thought that if we had to find one half of that, we took two dark greens and the white one. And we said if we split the white one in half, then it would be half, because if you put the white one there, it would equal up the the train that you made. [Andrew places a train of green, white, and green on OHP next to orange and green] |
| 3 | | Meredith | [whispering] Quick, give me the yellow, I need the yellow. I have a solution, I have a solution. |
| 4 | | T/R 2 | Ok, do you all follow what Andrew said here? Erik, did you have a comment on that? You had something different. First of all, what do you think of this? Does this work? Looks like we're into inventing our own rods again, right? Making up a rod, a new rod here. Why do you think that works? I mean, why do you think that that works? You have any ideas? Meredith? |
| 5 | | Meredith | Well, because you want to have seven and six, seven, but there are no rods that are really seven, and you need it to be thirteen. So, those two blocks and half of that would equal up to it, and it would help- |
| 6 | | T/R 2 | Okay, can you say a little bit more about that? |
| 7 | | Meredith | Well, take the two greens and take a white. And you do that. |
| 8 | | T/R 2 | So you're showing the two greens and the white that are up here. Ok, it's just like our picture up here. |
| 9 | | Meredith | And there's no blocks that have half on them, and for the uneven numbers, for the odd numbers you need a half, because you can't make it without it. |
| 10 | | T/R 2 | Ok, Brian said something like that too about the numbers being odd. Brian, what did you want to add? |
| 11 | | Brian | Well, like what we did last time with, when Mrs. Maher was talking about, about if we split the gold equally, what you could do is, well, I thought of a lot of ways. So like, once I have the white cube in the middle, you split that in half, right in the middle. That's what we did last time. |
| 12 | | T/R 2 | Great! Ok, well you came up with several different ways. I see one of the ways that Brian has is, he used light greens, all light greens and one white, right? Ok. That would be another way to do it, wouldn't it? That's really very nice. [Brian built 5 models for the orange and light green train: G-W-G, LG-LG-W-LG-LG, R-R-R-W-R-R-R, P-Y-P] Ok you two can take a seat. Does anybody else have anything they want to add to this before I |

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| | | | begin a new problem? [Sarah and Meredith raise their hands] Ok, let's see, Sarah? [Sarah and Meredith go to the overhead.] You can take these off if you want to. Oh, you need another light green, you know I don't think we have any for the overhead, so maybe we could just use one of the regular - why don't we try those, ok? [talk about the rod looking black on the overhead] Well, we can pretend that it's a light green, can't we? Ok, go ahead. |
| 13 | | Meredith | [She builds a train of Y-LG-Y] If that's a light green, then you could just make a yellow and add one and a half to the yellow and one and a half to the other yellow. |
| 14 | | T/R 2 | What do you mean, one and a half? Does anyone know what Meredith means? I don't want you to tell me yet. Does anyone know what Meredith means by adding one and a half to the yellow on each side? Where did she get one and a half from? I see a couple of hands, let's see. Graham. |
| 15 | | Graham | The light green. |
| 16 | | T/R 2 | The light green, ok. How does this become one and a half? What piece of it [the train] becomes one and a half? I don't understand. |
| 17 | | Graham | You split it in the middle and it would be one and half on each side. [He holds up the light green rod and shows cutting through the middle of it.] |
| 18 | | T/R 2 | Ok, okay, all right. So if I cut that [light green rod] down the middle, I see, okay. Well if we're calling this light green three, what are you calling this train with the light green and the orange together? |
| 19 | | Meredith | Well, the yellow is I think the yellow's um, I think yellow is about five long, and the green in the middle [counting cm in the train] Ten [two yellow rods], eleven, twelve, and then thirteen [for the light green rod], thirteen yellows. |
| 20 | | T/R 2 | You were thinking of the whole length of the train as being thirteen of what? |
| 21 | | Meredith | Thirteen |
| 22 | | T/R 2 | Thirteen blues, thirteen oranges, thirteen what? |
| 23 | | Meredith | Thirteen yellows |
| 24 | | T/R 2 | Thirteen yellows? |
| 25 | | Meredith | If you turn the light green into yellows. |
| 26 | | T/R 2 | I don't understand. |
| 27 | | Meredith | Well, if you cut that [light green rod] in the middle and then you just paint the light green of each piece yellow and you're making it thirteen and it will be equal to the train. |
| 28 | | T/R 2 | Do you understand my question, though? She keeps asking for thirteen for the train that I made with the orange and the green. I don't understand where she's getting the number thirteen from. Why thirteen? |
| 29 | | Erik | Wait, she's getting thirteen from the number of the whole train? |
| 30 | | T/R 2 | Well she keeps saying that the length of this is thirteen. |
| 31 | | Erik | Yeah, I know, I know where she's getting it. |

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| 32 | | Erik | Well, see, if you take one of the orange rods and take all these little things [white rods] and you put it up to it, it will equal ten. And then if you do the same thing with the light green rod, it'll equal three. And if you have ten and three its thirteen. [As Erik speaks, Meredith lines three white rods on top of the green rod]. |
| 33 | | T/R 2 | Oh! So then what you're saying is if you line up the little white cubes along the, uh, train with the orange and the green there'd be thirteen of them? I understand, ok, I understand what you're saying, that's wonderful. |
| 34 | | Erik | Yeah, thirteen. |
| 35 | | T/R 2 | Do we have a minute to do another one, or do we have to clean up. |
| 36 | | Erik | I have another solution. [Some talk by T/R 2... He goes to the overhead and puts two light green rods under the orange and light green train. He adds seven white rods to the right of the light green rods]. I figured you could take two light greens and put them there. And then after that I just took all these, the clear ones [white rods]; and I figured, well, I put down seven. And I figured that they all equal, and if you have these two you would have three and then you could take one and put it on that and so it would be four, five, you would have three, four [He motions that he is adding one W to the LG, one W to the other LG, etc.], and then four, five, five, six, six, and then seven. |
| 37 | | T/R 2 | Ok, alright. So you figured then that you can put, have seven on each of our halves? |
| 38 | | Erik | Yeah, of the halves, and then like you're making a new rod. |
| 39 | | T/R 2 | So there'd be seven and seven? What do you think about that. He's saying |
| 40 | | Erik | Yeah, well no, well, I mean, not seven and seven, seven and six. Its an odd number of white, the clears, so it wouldn't be seven one would be seven and one would be six. |
| 41 | | T/R 2 | Ok, so in other words, one of these could go here with this group, one of those goes here, back and forth like this. Ok, what happens to this guy, tho? [pointing to the white rod to the far right] How can I be fair in my making my two halves the same size? What could I do? |
| 42 | | Erik | What could you do, I think what you could do is, hmm, you could take this [white]. And you could replace those two, those three with a light green, yeah on of the light greens like that. [He moves three whites and places a light green in his model.] |
| 43 | | T/R 2 | Uh huh, oh, but I have one for this guy, and one for this guy, one for this guy, and what about this guy? [She points to the remaining W on the far right.] |
| 44 | | Erik | Oh, what this guy would go. |
| 45 | | T/R 2 | I think we ran into the same problem, didn't we? Would you agree that if we went back to this model, Erik, where we had these [She rearranges the rods] and we were divvying them up. Would you agree that maybe I could take this one [white rod] and saw it in half, if I had a saw? |
| 46 | | Erik | Yeah. |
| 47 | | T/R 2 | And then what could I do with it, if I sawed it in half? |

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| 48 | | Erik | Then you could put half here and half here [pointing to the two columns of rods] |
| 49 | | T/R 2 | Ok, ok, I think we're almost out of time aren't we? We probably need to clean up. |