

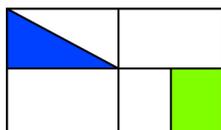
## pTranscript: Describing the Use of a Representation

Elementary Mathematics Laboratory for incoming fifth graders  
Park City Mathematics Institute  
Tuesday, July 11, 2006

### Seating Arrangement

Jessica								Maddie
Ally								Cozy
Sabrina								Holly
Brianna								Luke
Tori								Arthur
Paige								Britney
David	Vinnie	Rebecca	Sarah	Ben	Trevor	Michael	Sean	Autumn

*Problem:*



*What fraction of the big rectangle is the blue region?*

*What fraction of the big rectangle is the green region?*

1 Teacher: Would somebody be willing to tell us how you  
2 decided on the answer to either the blue or the  
3 green? I don't care which, but just one of them?  
4 How did you decide what to call the fraction of the  
5 big rectangle taken up by either the green region or  
6 the blue region? Somebody willing- Art, would you  
7 like to tell us one of them?

8 Teacher: Can you go up now and show us how you came up  
9 with the, with the eight? Because you started by  
10 talking about half and think that would be good for  
11 the class to see what you're saying. Can everybody  
12 please practice looking and listening more carefully  
13 than we have the last couple days, so you can  
14 interpret what he's saying. Go ahead.

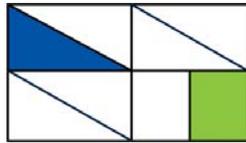
15 Art: I saw that it was half of this- of this little rectangle  
16 here. (*Points to the small top-left rectangle with the*  
17 *blue region*). And I divided the other ones in half.  
18 And this one was already divided in half. (*Points to*  
19 *the small bottom-right rectangle with the green*  
20 *region*). And so I saw that it was one-eighth.

21 Teacher: Okay. I'm gonna give you a p- your own chart paper.  
22 Come over here and can you just draw for us what  
23 you were picturing. And then we can understand it  
24 better. There's- And you're working on the blue,  
25 right?

26 Art: Yes.

27 Teacher: So go through it one more time and draw- just draw  
28 what you were thinking about.

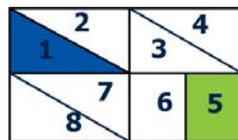
29 Art: I saw that this one was half of this other one. (*Points*  
30 *to the small top-left rectangle with the blue region*).  
31 And then I divided the other ones in half. (*Draws:*)



32 And this one was already divided in half (*Points to the*  
33 *small bottom-right rectangle with the green region*)  
34 and then saw that there was eight- eight equal pieces  
35 and there-

36 Teacher: Can you count them out really- just clearly for us?  
37 One.

38 Art: One, two, three, four, five, six, seven, eight.  
39 (*Draws:*)



40 Teacher: Okay so then what did you decide?

41 Art: And then I decided that one- this triangle or whatever  
42 it is was the only one that was colored. (*Points to the*  
43 *blue region*). And so there was eight other pieces  
44 and I put one-eighth.

45 Teacher: Okay. So, let's have comments on- on Art's  
46 explanation. Do you have any questions about what  
47 he did or any comments about it? Rebecca, can you  
48 just quickly summarize how he- how he decided it  
49 was one-eighth. What did he do?

50 Rebecca: He divided every square just like the first square.

51 Teacher: Into what?

52 Rebecca: Into a half. Like, divide every square in half.

53 Teacher: Uh-huh.

54 Rebecca: Like the first square- rectangle. And except the sixth  
55 and the five- sixth and fifth one, it was already  
56 divided, so we didn't need to do that. And so then he

57 just counted every piece and saw what- like, how  
58 many numbers there were, and it was eight. And  
59 only one fraction of those eight was colored in blue,  
60 so it was one-eighth.

61 Teacher: Is that right?

62 Art: Uh-huh.

63 Teacher: Okay, does anyone disagree with what Art has put up  
64 there? Did anyone disagree that the blue region is  
65 one-eighth of the big rectangle?

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66 Teacher: Okay. So now let's get someone to explain what  
67 fraction of the big region- the big rectangle is the  
68 green region. Because what Art explained is what  
69 fraction of the big rectangle the blue region is. Can  
70 someone explain what fraction of the big rectangle is  
71 the green region?

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72 Teacher: Can you do it in a way that people who are a little  
73 confused think that they'll understand it? Do you  
74 want your own sheet?

75 Brianna: Yeah.

76 Teacher: Actually, let's move it up so people can see. There  
77 you go. There's yours.

78 Brianna: What I thought of the rectangle is- What I usually  
79 do-

80 Teacher: Can you talk just a little bit louder?

81 Brianna: Okay.

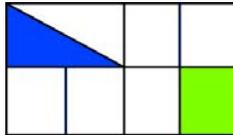
82 Teacher: Okay.

83 Brianna: What I usually do if I have a fraction like this and I  
84 don't really understand it, I take my pencil to see how  
85 long it is like this or like t- (*Measures the width of the*  
86 *bottom-right sections including the green region with*  
87 *the marker*) and see- and measure if it's the same

88 exact length. That would equal a half. And there's  
89 eight equal pieces in all if you divided it all in half.

90 Teacher: Can you show us that?

91 Brianna: So there would be eight equal pieces. (*Draws:*)



92 And this one's already in half like Art said. (*Points to*  
93 *87 the small top-left rectangle with the blue region*).  
94 And there's eight equal pieces and one of them is  
95 shaded, so I just say one-eighth.

96 Teacher: Okay. So the parts of your explanation were that  
97 there were eight equal pieces and so you called it  
98 one-eighth?

99 Brianna: And one was shaded.