Description: Multiple representations for equivalent fractions, Clip 1 of 1 **Parent Tape: The number line and equivalent fractions** **Date: 1993-11-12** **Location: Colts Neck Elementary School** **Researcher: Carolyn Maher**	**Transcriber(s): Schmeelk, Suzanna** **Verifier(s): Cann, Matthew** **Date Transcribed: Spring 2009** **Page:** 1 of 5

Line	Time	Speaker	Transcript
1		**RT1**	Ok. Graham and Kelly had something very interesting to say about why um…one half should go in the same, is another name for two fourths and should go in the same place. Graham do you want uh to tell us? Graham told me.
2		**Kelly**	Well, one half plus one half equals a whole, and two fourths plus two fourths equals a whole.
3		**RT1**	Well that's an interesting argument one half plus one half equals a whole, and two fourths plus two fourths equals a whole. Does that make sense?
4		**Erik**	Uh I think they're kind of off. It's true, but they're kind of off. It's true that one half plus one half equals one whole, but two fourths plus two fourths equals four fourths which is one whole.
5		**RT1**	[*Writing on the chalk board*] OK, so we have one half plus one half equals one whole, two fourths plus two fourths equals one whole, or two fourths plus two fourths equals four fourths equals one whole.
6		**RT1**	How many of you agree with that? Does that make sense?
7		**RT1**	That's very neat. I hope you notice, Mrs. Phillips, that they're adding fractions.
8		**RT3**	Yes, I noticed.
9		**RT1**	That's very neat. That's very neat. Ok. That's very neat. David? Hold on let's hear what David has to say for a moment?
10		**David**	Well I was thinking. That uh that like four fourths equals one half which equals two halves.
11		**RT1**	Say that one more time David
12		**David**	Uh, four fourths should be equals one half [*RT1 writes on the board*]
13		**Erik**	four fourths equals one half ? four fourths? Two fourths.
14		**David**	two fourths….oh wait one whole

15		**Erik**	four fourths is equal to one whole
16		**David**	Yeah that's what I mean.
17		**RT1**	[*Continues to write on board.*] You want me to change this? four fourths equals one whole
18		**David**	Yeah um and two fourths is equal to one half
19		**RT1**	Why?
20		**David**	Because um….two fourths uh would be equal to right up right next to is like in the middle of like one whole and um
21		**RT1**	In the middle between numbers?
22		**David**	zero and one.
23		**RT1**	Between zero and one. Ok.
24		**David**	and um so then one half of it would be in the same place.
25		**RT1**	Ok
26		**David**	So the half would have to be in the same place
27		**RT1**	Ok
28		**David**	because if you put them right next to each other the one half would be in the same place as both of them because would one half would be equals on both sides
29		**RT2**	What might be helpful is that David drew a picture here which I found very helpful to me in understanding his argument and I think it might be hard for everyone out there to understand what David says.
30		**RT1**	Would you sketch it up here David?
31		**RT2**	Would you please David? I think that might help.
32		**RT2**	Want to take you picture with you?
33		**David**	[*Sketching using rods on board*]…I just drew it like that because…

34		**David**	that's the one whole, um these are the one fourth, and that's the one half, and this would be zero and that would be one.
35		**RT1**	Let me ask you to do something here that might help me. I want these to be here. Can you place your numbers here now. [*RT1 draws in lines to turn the rods into a number line.*]
36		**David**	You mean like one half .
37		**RT1**	Where zero go underneath, no underneath like the number line. [*David draws in zero,1/4,two fourths, three fourths, one, one half on the number line.*]
38		**RT1**	Ok so what I'm imagining when you do that David, I'm imagining the rods and I'm also imagining the number line. That's very helpful to me. Is that helpful to you what he's done? [*Class murmurs 'yes'*] How many of you understand what David has done? Raise you hand if you understand it. If not, if you have a question David. I'm sure will be happy to answer it. Does anyone have a question for David? [*No student on camera raises their hand.*] Now what David is suggesting which um I think helps me a lot, I don't know if it helps you, that if you went to place numbers between zero and one imagining the rods, right? It helps you to place those numbers.
39		**Class**	Yes
40		**RT1**	Now once you place the numbers and then once you imagine the rods it seems to be when the rods would end. Right, where the one half rod ends, is where you would place one half where it ended here he placed a one. Right? That's a very very nice notation. I like that a lot. What do the rest of you think of that?
41		**Student**	I like it.
42		**RT1**	[*To Alan*] What do you think? Thank you very much David
43		**Alan**	I agree with him.
44		**RT1**	Isn't that nice. That's very nice. How many of you like that? Yeah, I like that a lot. Maybe we can adapt that as an

			interesting notation. If we were inventing our own notation that would be a very useful one. Jakki?
45		**Jakki**	It's sort of like the Cuisenaire Rods.
46		**RT1**	Yeah that helps me a lot doesn't it?
47		**Brian**	It's supposed to be the purple rod, one fourth would be the white and the half is like the red, or the purple I think.
48		**RT1**	Jessica?
49		**Jessica**	Well, I think it is sort of a new way to make a number line.
50		**RT1**	It's a way to build it isn't it?
51		**Jessica**	Yeah.
52		**RT1**	That's a neat idea. Yeah, I think so, too. Michael?
53		**Michael**	Uhm, I, when I was working at home trying to make a number line I um found out that if you um do like one whole divided by two you would need would get like one half because you would take one plus….like that….and then or you could get two fourths if you divided it by two so that would prove that two fourths and one half are the same.
54		**RT1**	That's very nice. I think that would prove it to me, would it prove it to the rest of you?
55		**RT1**	James?
56		**James**	Uhm, I have another way to do it. I also drew a picture.
57		**RT1**	You did? Ok, do you like to share it with us?
58		**James**	Ok
59		**RT1**	Ok. Sure. Would you like to do it on this side?
60		**James**	Ok. This is one half [*refers to right circle*] and this is two fourths [*referring to left circle*], two fourths I made a circle and divided it into 4ths and colored in two fourths and it shows it equals one half. One side of this and two sides of

			this both are one half.
61		**RT1**	What do you think of that?
62		**Students**	I agree.
63		**RT1**	What do you think of that? How many of you understand what James did here? We had another way of trying to justify that one half was the same as two fourths. And that would therefore enable you to put them in the same place on the number line?
64		**James**	Yes
65		**RT1**	Thank you very much James. Uh hah! Interesting. Jakki.