

Description: Fraction problems: Sharing and Number Lines (Class View) Parent Tape: Fraction problems: Sharing and Number Lines Date: 1993-11-01 Location: Colts Neck Elementary School Researcher: Professor Carolyn Maher	Transcriber(s): Schmeelk, Suzanna Verifier(s): Cann, Matthew; Farhat, Marcelle Date Transcribed: Spring 2009 Page: 1 of 10
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Line	Time	Speaker	Class View
1	Class 11:54	RT1	Well, Good Morning
2		Class	Good Morning
3		RT1	It's Monday. It sounded like that last Monday, too. You know today we have a visitor another visitor. And maybe, Professor Davis can say a few words about our visitor.
4		RT3	Okay. Do you know what country the city of Oslo is in?
5		Student	[<i>Off Camera</i>] Norway
6		RT3	You are Right. Well that is where he is from. Professor Gunnar Gjone is from Oslo, Norway and he is here to see what we are doing.
7		RT1	That's quite a long distance isn't it?
8		Class	Yes.
9		RT1	Okay. Umm it is Monday morning that's true and I know you all had a wonderful weekend . Yes. It was a very special weekend wasn't it?. Too bad it rained but I bet you made the best of it. But it is Monday and I'm wondering if you could think really hard and sort of help me and try to help us remember what we were doing on Friday morning? Do you remember how it all happened? Was it Friday? Something you were doing on Thursday led to something you were doing on Friday. Remember? Oh, look, we have 3 people, 4 people, 5 people remembering what we did on Friday. I know it takes a while. Thinking hard? It's okay to talk with your partner.(chatter) More people are remembering. Okay. There are still some people are not remembering. I can't believe James doesn't remember. I think James remembers. Can someone help James? Are you helping James remember? Oh, he says. Who wants to tell our visitor what happened? Graham, your hand was up first, do you want to tell our visitor what happened?
10	Class 14:00	Graham	Well, we had a candy bar .. Tuesday.(Inaudible) And then We had to make a problem and use our rods to see who got more and by how much.
11		RT1	Okay, can someone tell us how that story end? Did it? Who got more and who got how much? Who wants to tell us the rest of that story? Mark?
12		Mark	Well, the people that got one fourth got more by five-thirty-sixths.

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13		RT1	Five thirty-sixths more? How many of you remember that? Five thirty-sixths more.
14		RT1	How many of you believe that?
15		RT1	Okay so, you all seem to believe it, but you don't all quite remember it. But do you remember how you did it? Do you remember how you were able to show that they got more by five thirty-sixths?
16		RT1	Does anyone want to kind of review how you showed that one fourth was larger than one ninth by five thirty-sixths?
17		RT1	Can you kind of remember it in your head without the rods, how that worked, James?
18	Class 15:28	James	Umm .Well, we had to thirty six whites, And it took five whites to get from one-fourth to one-ninth one ninth, or one ninth to one fourth, so five thirty-sixths to get.. is the answer.
19		RT1	So that's the difference? (James –Yeah)How many of you remember that?
20		RT1	Do you know what I am curious about? Some of you said one fifth. In fact everyone in this class thought the difference would be one fifth before you did the activity. Do you remember that? I asked you.
21		Class	Um-hum.
22		RT1	I'm kind of curious, what made you think one fifth? Brian?
23		Brian	Well, it's the same, well me and Meredith kind of thought that it was the same as nine minus four equals five.
24		RT1	So you were thinking whole numbers.
25		Brian	Yeah
26		RT1	Does it work that way with fractions? What do you think Meredith?
27	Class 16:25	Meredith	Well if you put the blue which has nine ones in it, and the four plus the five rod then you have nine.
28		RT1	You said if you took the blue, and what number name are you giving that?
29		Meredith	Well I'd call it nine
30		RT1	You're going to give it nine, and what was the other rod?
31		Meredith	The four rod which I think was the purple rod
32		RT1	You're calling the purple, four?Is that what you said?

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33		Meredith	Yes, and then the yellow would be the five and it would equal up to it. That is what I thought at first.
34		Erik	[<i>Shaking-head, 'NO'</i>] I think that ...
35		RT1	What is wrong with that thinking? [<i>Meredith simultaneously says that was what she thought at first</i>] I mean five plus four is nine, I believe that ,does that that work? Erik did you want to say something?
36		Erik	I think that it doesn't make sense because how could the blue rod be one ninth of one model and the purple rod be one fourth when the blue rod is larger than the purple rod? ... Maybe If you made a super gigantic train than maybe the blue rod would the nine but I would think that the purple rod, more sensibly the purple rod or the yellow rod would probably be the nines and the blue rods would be the fourths..
37		RT1	I heard Meredith call the blue rods
38		Erik	Yeah I know I just don't think the way Meredith explained the way she thought before made a lot of sense
39		Meredith	I know I changed my answer.
40		Erik	I just think the five rod equals up to the same as five thirty-sixths
41		RT1	So you think that the five thirty-sixths is somehow related.
42		Meredith	Um-hum
43		RT1	That's an interesting idea. Do we have enough of these? How is that, is that better?
44			Okay. So that is a start that can get you very confused. Is that right?
45		Class	Yeah
46		RT1	If you call the blue rod nine, then you could say then the white rod is one, pink rod is four, yellow rod is five and you proved five plus four is nine. You actually proved five plus four is nine. You

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			proved it doesn't quite work that way for fractions, does it? What do you think?
47		Class	[<i>Quiet</i>]
48		RT1	Okay. That was very interesting, so, I was just wondering when you saw the big model that was built and you saw that the person that got one quarter of the candy bar got five thirty-sixths more than the person who got the ninth of the candy bar, is that much of a difference do you think?
49		Jessica	No, I think that there is twenty-five people in the class and that is an odd number, so so umm you cannot have all even groups, that is why I think some people got one ninth and one fourth.
50	Class 20:07	RT1	I wonder if there is a better way and I want you to think of a way, I want you to follow this pattern and I want you to think about, of sharing those three bars of candy so everyone got the same amount exactly. Think about a way, think about that.. [<i>Andrew raises his hand</i>] Andrew, any ideas?
51		Andrew	Well, what I did one day we had to do for homework, that we had to divide equally, so I came up with the answer that everyone got one and one fifth.
52		RT1	How did you do that?
53		Andrew	Well, there were three candy bars and each one had ten rectangles in it. So I took twenty five of them and circled it and put one. Then, the five left, if you divided them up into fives it would be five, ten, fifteen, twenty, twenty five, so each person would get one and one fifth.
54		RT1	That is an interesting conjecture isn't it. Did you hear that what Andrew said? How many of you follow what Andrew said?
55		Class	[<i>Few students raise their hands.</i>]
56		RT1	I wonder if there is a way to test that, that it would have been, uhm, okay. Could you draw us a picture or something to show us your way. Andrew, how did you show that?
57		Andrew	Yeah, well, I made the three candy bars
58		RT1	Can you try to all imagine what he is doing? The three candy bars.
59		Andrew	with the ten pieces in them.

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60		RT1	Ten. Ten. Ten. Can you all imagine that?
61		Class	Umm-hum [‘Yes’]
62		Andrew	Then, I took two candy bars and five pieces of the other one to make twenty five.
63		RT1	Okay so everyone gets one of those thirty pieces and there are how many left over?
64		Class	Five.
65		RT1	Five. Do you all follow that? How many people follow that so far?
66		Class	[<i>Some students raise their hands.</i>]
67		RT1	So, thirty pieces and everybody got one and five left over. Okay
68		Andrew	Then those five would be just like one candy bar but it would be smaller so you divide them into fifths—five, ten, fifteen, twenty, twenty-five. There are enough people so everyone get one and one fifth.
69		RT1	What do you think about that? Would that have been fairer, do you think? Get one and one fifth compared to some people getting one and one quarter and some people getting one and one ninth.
70		Class	[<i>Mumbles ‘Yes’</i>]
71		RT1	What do you think?
72		RT1	Is one and one fifth more or less than one and a quarter? More or less? What do you think?..Is one and one-fifth more or less than one and a quarter? Those of you in the group with one and a quarter now got one and one fifth would you have gotten more or less? One and one fifth more or less?
73		RT1	Danielle?
74	Class 23:20	Danielle	Less.
75		RT1	Okay. How many think it’s less?
76		Class	[<i>Some students raise their hands.</i>]
77		RT1	Why?
78		Danielle	Because that’s [<i>five</i>] a bigger number, so when you have a bigger number, you get less.
79		RT1	Which is the bigger number?

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80		Danielle	Five
81		RT1	Five. Okay. What do you think about that? What do you think? Brian?
82	Class 23:49	Brian	Well, I agree with her. If you have a bigger number than you need to take like say, see its one and one fifth. If it is one fifth, then there has to be five of them in one whole. And If there is one fourth, And If they are quarters, then you only need four of them to go into one whole, so five is a bigger number and so it needs more to fill up one whole. So its so it's less.
83		RT1	<i>[Writes one half, one third, one fourth and one fifth]</i> So, if I were to say things, like one half, one third, one fourth, one fifth, right? If I were talking about these numbers then would you know which are bigger and which are smaller? How many think you know which of these numbers are bigger and which are smaller? Who could explain why? Can you imagine the model?
84		Class	<i>[Many students raise their hands.]</i>
85		RT1	David, what do you think?
86	Class 25:00	David	Well I think that like if you have about this big then one half would be right in the middle <i>[motions 1/2 on a imaginary unit]</i> then one third that would be kind of smaller <i>[motions to where one third would cut on a unit]</i> because you have to fit three pieces in there and then one fourth would be even smaller than one-third.
87		RT1	Want to come draw that for me? You all hear what David is saying?
88		David	<i>[Walks up to OHP in front of the room.]</i>
89		RT1	Sure, Want to draw your one. Call something one and draw it?
90	Class 25:24	David	Umm Maybe umm the orange
91		RT1	Just sketch it ...Sure
92		David	Umm like If this is the one here
93			... then one half would be there...and then you
94		RT1	Can you mark one half right where you put it, like put it right underneath so we can see it?
95		David	What do you mean?
96		RT1	Just draw the number one half . Put one half where you want to show one half.

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97		David	One half, Then, one third.
98			Then one fourth.
99	Class 27:00	RT1	Then, one fifth. Thank you very much. Does anyone have a question to ask David before he sits down about what he has done? Can you imagine this with the rods? Thank you, David. Where do you think one fifth would be Meredith?
100		Meredith	The whole would be divided into fifths.
101		RT1	So do you think it would be to the right of a quarter or to the left of a quarter?
102		Meredith	Left.
103		RT1	To the left, So somewhere like this maybe?
104		RT1	I'm going to do this. I'm going to call this zero and I'm going to call this one. I wonder who would like to come up here and mark where the number one half would be? Michael?
105		Michael	<i>[Walks up to OHP in front of the room.]</i>
106		RT1	Do you Want to mark one-half underneath where I put the zero and the one.
107		Michael	<i>[Places the number midway between 0 and 1.]</i>
108		RT1	Thank you, Michael. How many of you agree with that? You would put it in the same place.
109		RT1	What do you think the next question will be?
110		Class	<i>[Inaudible]</i>
111		RT1	So, where do you put one third and one fourth? Would you call on someone? Erik?
112		Erik	<i>[Walks up to OHP in front of the room.]</i>
113		RT1	You got to watch because if you don't agree you've got to say it. Approximate is okay, Erik.
114	Class 28:32	Erik	Approximate <i>[Places the number one third to left of one half.]</i>
115		RT1	How many of you agree with that?

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116		Class	[<i>Camera shows students raising their hands.</i>]
117		RT1	Does anyone disagree?
118		Class	[<i>Camera shows students raising their hands.</i>]
119		RT1	Don't go away, Erik, what's the next question? Somebody disagrees. Andrew. Do you agree? ANDREW_- NO RT1- Andrew disagrees. What do you disagree with?
120		Andrew	The one third approximately needs to be a little more over because the one fourth has to be half of the one half. So, if you put one fourth half of that [<i>placement of one third</i>] it would be on the left of the one third.
121		Erik	I know. I didn't, I didn't put the one third. The one third, if it was one fourth it probably be about here right. So it's not, it's just approximate cause I don't think
122		RT1	Okay, Do you want to call on Andrew to put in the one quarter? Now do you agree with all this Andrew?
123		Andrew	[<i>Laughs. Walks up to OHP in front of the room. Places a one fourth to left of one third.</i>]
124		Andrew	Yeah. Should I call on someone to place one fifth?
125		RT1	Okay. How many of you agree with what's up there?
126		Class	[<i>Several students raise their hands.</i>]
127		RT1	Does Anyone disagree? [<i>No students raise hand</i>]
128		RT1	Okay. What about the one fifth? Want to call on someone? Brian.
129		Brian	[<i>Walks up to OHP in front of the room and places one fifth to left of one fourth.</i>]
130	Class 30:58	RT1	How many agree with that?
131		Class	[<i>A few students raise their hands.</i>]
132		RT1	Now suppose I asked you to put one tenth up there. Where do you think it would go? Think about it for a minute and tell me where you think it would go. One tenth. Beth, is your hand up or you just thinking? [<i>Beth remains quiet</i>] Where to put one tenth. What do you think?
133		RT1	Any ideas? Erin? Mark?

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134		Mark	[Walks up to the OHP and writes one tenth to the left of one fifth]
135		RT1	Ok I'm going to ask you all one one-hundredth... What do you think?.
136		Erik	I disagree.
137		RT1	Erik, disagree? James? It's getting hard. Brian? I know this is getting hard right?. Jakki, you disagree? Why?
138		Jacquelyn	Well, if one fifth is next to the end. Then five plus five equals up to ten, so it would be like in the half.
139		RT1	OH. Jakki thinks one tenth should go in the middle.
140		Students	[mumble no]
141		RT1	You disagree. James?
142		James	I think it should go more towards zero.
143		Students	[mumbles yeah]
144		RT1	More towards zero?...David? Alan?
145		Alan	I think that the one tenth should be moved over just a tiny bit.
146		RT1	It's getting hard to do this, isn't it?
147		Alan	Yeah, Up there you have a whole, you are dividing it into tenths and you have a half mark. So you have to use this as a guideline, you'd have five tenths on one side and five tenths on the other side. Now, up there, if you took that little space between the zero and the one fifth, and you use that five times it wouldn't reach the half way mark.
148		Mark	[Inaudible gesturing on number line]
149		RT1	What do you think? Brian?
150		Brian	I agree with Mark. It is a little far back. I think the third should be moved up, then the fourth should be moved up. Because that why I thought the fifth was wrong when I did it because everything was moved back.
151		RT1	Know what I would like you to do? Maybe the problem is there isn't a lot of space; when you use the overhead pen it takes a lot of space. I would like you all to make your own number line between zero and one at your seats. I would like to see if you could place fractions between zero and one. I'd like you to place all the fractions, one half, one third, one fourth, one fifth, one sixth, one seventh, one eighth, one ninth and one tenth, with your partner. Jakki?
152		Jacquelyn	[Whispers to RT1]
153	Class 35:35	RT1	Sure. You can put your papers the long way if you'd like. No problem.

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