

Description: Placing Numbers on the Big Number Line (clip 4 of 4)
Parent Tape: Number Line Models and Placing Numbers on the Big Number Line
Date: 1993-11-10
Location: Colts Neck Elementary School
Researcher: Professor Carolyn Maher

Transcriber(s): Yankelewitz, Dina
Verifier(s): Reid, Adrienne, Farhat, Marcelle
Date Transcribed: Spring 2009
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Line	Time	Speaker	Transcription
1.		RT1	Okay, we only have about fifteen minutes so I would like to try something else. [<i>Directed to the group at the overhead.</i>] Thank you very much girls, I appreciate that. [<i>Groups sits down. RT1 rearranges front of room.</i>] What do you think we are going to do now?
2.		Students	Fill in that number board.
3.		RT1	We are going to fill in the number line, that is right. Are you all thinking of your numbers?
4.		Students	Oh. No. [<i>Giggles</i>]
5.		RT1	Okay, now remember someone else may take your number so you had better have a few extra numbers ready to go and place them on that number line and if indeed we find that some of you disagree, then you will have to argue why you are placing it. Maybe someone will convince you to change your it or maybe you will convince them that you will not change it, Okay?
6.		Jessica	[<i>Jessica speaks softly off camera.</i>]
7.		RT1	That is a very good question, Jessica says let's have some ground rules, that's right. In other words, if we were going to put three thirds we are going to go underneath? Right? Where would you put it?
8.		Students	On top.
9.		RT1	Well, let's try to put it underneath; if we come out of room, then maybe we'll try to figure out another way. Is that fair?
10.		Students	Um-Hun. [<i>Yes.</i>]
11.		RT1	If we have different names for the same number, that might be interesting. We could put them underneath. Brian?

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12.		Brian	Should we go from zero to one?	
13.		RT1	No, we are going zero to, by the way we have to thank Mrs. Deming for making us this number line. She is running the camera back there. We could keep making it bigger. I do not know if Colt's Neck will let us break through the walls or we could go on the other side of the walls. Mrs. Deming assures us that if you want to keep enlarging this number line, that is fine. Okay? So we could have some fun with this. Are you all ready? I'll take volunteers. I'd like to hear from some people that have not been up yet, so I'd like some volunteers. There are some advantages to volunteering early. Do we have some volunteers? [<i>Three students raise their hands.</i>] Come on Audra. Jessica are you volunteering? Does someone have a ruler that might help mark the line? [<i>Audra brings up a ruler.</i>] All eyes are on Audra to see what she will pick. [<i>Audra writes one half under the zero.</i>]	
14.		Michael	No. That's not right. She puts one half on the zero. That is half between negative and positive, but that is not a half on the number line. Yeah.	
15.		Students	[<i>Students discuss what Audra did.</i>]	
16.		Alan	She is putting a half there we have three negative and three positive numbers, she is using negative three as the beginning of the line and the positive three as the end.	
17.		Brian	It should be one half between zero and three because on that side is the negative side.	
18.		RT1	Bryan thinks it should go between the zero and the three.	
19.		A Student	[<i>Off camera</i>] I do, too.	
20.		Alan	I think she is right.	
21.		A Student	I don't think so because its at the end.	

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22.		RT1	Let us hear what Graham thinks. Graham?	
23.		Graham	Well, she might have thought the ones before the zero like the three, two, one were not negative.	
24.		RT1	Where would you put the one half , Graham?	
25.		Graham	But if I did not know it was negative, I would put it under the zero.	
26.		RT1	You would put it under the zero?	
27.		Graham	If I didn't know it was negative.	
28.		RT1	Does it matter? Should it really matter? If Mrs. Deming decided to make the line go over here should it matter? David?	
29.		David	I agree with Audra because since it is integers it would go both ways, zero is one half of the whole thing that keeps on going, cause that where you start you can keep on going either way, but that is the middle.	
30.		Erik	I agree with Audra and David, because there is no way. I heard Michael say that the half would have to be on the positive side, its integers, they keep going, if it is on the positive side its not going to be equal halves, the negatives would be larger than the positives and if you even make the number line bigger, zero is right in the middle, so it is going to have to be half.	
31.		RT1	Let's here from Jessica	
32.		Jessica	Well, on that number line, it really is half because if you are going to put it on this side or this side would be really be a quarter. If you put it on the two, it will be a quarter because you will have one, two, three and then four.	
33.		RT1	<i>[Walks to overhead and extends the positive numbers to include four but does not extend the negative numbers.]</i>	
34.		RT1	I want to make that my number line.	
35.		Students	That is not half anymore.	

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36.		RT1	Alan?	
37.		Alan	Since you added on the four, then, that mean you now have four numbers positive but three numbers negative	
38.		RT1	By the way, do I really have four numbers positive?	
39.		Students	You have four numbers negative. You have five numbers positive ... zero, one, two, three, and four.	
40.		RT1	Is that what we have on the number line? Numbers up to four?	
41.		Students	[<i>Murmur.</i>]	
42.		Audra	This can't be one half.	
43.		RT1	Okay. Let me ask all of you a question. Does that number line end at four?	
44.		Students	No.	
45.		RT1	Does it end at five?	
46.		Students	No.	
47.		RT1	Where does it end?	
48.		Students	Nowhere. It keeps on going. Infinity.	
49.		RT1	Where does it end on the other side?	
50.		Students	Nowhere. Infinity.	
51.		RT1	But, I should be able to place every single one of my numbers and, just because I have run out of room to write it, that should not get in our way; we have to imagine these numbers going on. I would like to know where I would put negative one half.	
52.		Students	Negative one half?	
53.		Student	[<i>Off camera</i>] You have to have an even number.	

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54.		Alan	All negative numbers are different than positive. [<i>Stands up and comes to the board to point.</i>] From here down you are negatives so that means any number here cannot be equivalent to a number over there, so that means if you were dividing this part up into fractions, you would have to put one half mark in the negative, right about there.	
55.		RT1	So, you would put a negative one half between negative one and negative two?	
56.		Students	Yeah.	
57.		RT1	What do you think about that Meredith?	
58.		Meredith	Because one and one and one half and one half is three.	
59.		RT1	Where would you put three-quarters?	
60.		Students	Negative or positive?	
61.		RT1	Positive three-quarters.	
62.		Erik	Positive three-quarters, that is simple.	
63.		RT1	I am confused. Yeah, let us hear what Meredith has to say. Why don't you all sit down. [<i>Meredith walks up to board.</i>]	

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64.		Meredith	<p>If you are asking where is three fourths, three fourths would be here, here, and here. This would be one-quarter, this would be two-quarters, this would be three-quarters, and this would be four-quarters.</p> <p>This would be one and one-quarter, this would be one and two-quarters.</p> <p>This would be one and three-quarters, this would be one and four-quarters. This would be two and so on.</p>	
65.		RT1	I am still confused now why one half is on the zero? And, why two quarters is between zero and one? I am very confused.	
66.		Meredith	If you have zero to one, it would not be from zero to four. You would not divide it like that. You would divide it one fourth, two fourths, three fourths, four fourths. This would be one and one fourth, one and two fourths, one and three fourths, two.	
67.		RT1	Thank you very much Meredith. How many of you agree with what Meredith did? How many agree? It makes sense to you?	
68.		Students	[All students on camera raise their hand.]	
69.		RT1	Everybody in this class agrees. Okay. Everyone agrees. I am still a little confused with where to put one half. I am very confused. Can you understand that I am confused? You want to keep it there Meredith? Do not tell me where to put it.	
70.		Meredith	No.	
71.		RT1	How many of you want to keep it there?	
72.		Students	[No one on camera raise their hand.] No.	
73.		RT1	How many of you want to put it some where else?	

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74.	Students	[Ten students on camera raise their hand.]	
75.	RT1	Amy?	
76.	Amy	You could keep it there, but you have to add negative four.	
77.	Students	You have to do something to keep it there.	
78.	RT1	David?	
79.	David	I think Audra is using the whole thing while Meredith is using from zero to two.	
80.	Alan	When adding up all those numbers on the negative side would just be like doing nothing.	
81.	RT1	I'm kind of curious where Meredith would put negative one fourth? Negative two fourths? Negative three fourths? and negative four fourths? I am kind of curious where she would do that.	
82.	Meredith	[Walks up to board.]	
83.	Students	She is like cutting the number line.	
84.	RT1	I am still very confused about where that one half is. I do not know how zero and one half could be the same point. Very confusing to me. If we are given a point with the number name zero, I don't see how it could have another number named one half. I am so confused. I hope you will straighten me out, because I am so confused.	
85.	Meredith	It doesn't.	
86.	David	When you put one more number, four. Before it was from negative three to three, when it was from negative three to three so zero was one half. But, now that you added the four to the positive side it is not one half, both sides of the negative and positive are not equivalent.	

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87.		RT1	But, you told me earlier that I could put four fourths here because that is another name for one. And, I think some of you told me that I could put five fifths here because that is another name for one. And, in fact, I thought I even heard Michael say earlier that you could put a thousand thousandths here because that is another name for one. Did you say that Michael?	
88.		Michael	Um-Hun [<i>Yes.</i>] You could put a million millionths there.	
89.		RT1	You could put million millionths. And, you could put other names for one here. But, I don't understand how another name for zero could be one half. I am so confused; this mathematics is confusing to me. James?	
90.		James	I think that one half might go between zero and one. Half of it is negative one, negative two, negative three. The other half is one, two, three, four.	
91.		RT1	Do you want to show us what you are thinking? [<i>RT1 passes the marker to James.</i>] That is an interesting idea. You can write it underneath on the bottom. So am I hearing James say that one half is another name for two fourths?	
92.		Students	[<i>Murmur</i>] Um-Hum.	
93.		RT1	What do you think, is that possibility?	
94.		Students	Yeah.	
95.		RT1	Thank you James. What do you think about what James did? That one half is another name for two fourths?	
96.		OHP		
97.		Students	Yeah.	
98.		RT1	Audra?	
99.		Audra	I agree because [<i>inaudible</i>].... even fractions so that ... [<i>inaudible</i>]....	
100.		RT1	Am I hearing you change you mind?	

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101.	Audra	[inaudible]	
102.	RT1	Audra is telling me that one half could go here. Can zero and one half be the same? How do you feel about that? Not sure? Want to think about that?	
103.	Audra	Well, one half could be anywhere between these number. one half could be between ... [inaudible]	
104.	RT1	Could someone tell me what the confusion is? There is clearly something that we are getting confused about. Andrew, and, then, James.	
105.	Andrew	I think what we are all getting confused about is the length of the number line. We have five positive number and four negative numbers counting the zero. They are not exactly the same so you would have to put one half a little more over to the positive side where two fourths is, now that we have three negative number and four positive numbers.	
106.	RT1	How many agree that is what the confusion is?	
107.	Students	[Mumbles.] No.	
108.	RT1	How many think there is something else that is the confusion? James?	
109.	James	I think the confusion is one half is in the middle of two things. So, it is confusing to see in which place between three to four, two to three, one to two, zero to one, negative one to zero, negative two to negative one. I think that is the confusion.	
110.	RT1	Would you place one half here would you place number one half here [<i>Points to the middle of two and three on the number line</i>]?	
111.	Students	Yeah.	

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112.	RT1	We are talking about the number one half. I am asking you the question. I agree that you could find the one half the length between two and three, I agree, but could place the number one half here?	
113.	Meredith	<i>[Exclaims]</i> It has to be two and one half.	
114.	RT1	Is that allowed? Andrew?	
115.	Andrew	It has to be two and one half.	
116.	RT1	You could put two and one half here, I could take this and split it in one half but I would not put one half here, I would put two and one half. Agree?	
117.	Brian	You could be a one half between every number....like <i>[Gets up and runs up to board.]</i>	
118.	RT1	That's okay, Brian, we can hear you. <i>[Motions to Bryan to sit down.]</i>	
119.	Brian	Between the zero and the one would be a one half. Between the one and the two would be one and one half. Between two and three would be two and one half. Between three and four would be three and one half and the same on the negative side.	
120.	RT1	Okay. How many agree with that? In another words you are saying that the one half you are splitting that and then you know where to place those numbers. You were all telling me to place the number one half on the zero. I got very confused. What are they thinking, Alan?	
121.	Alan	They were thinking negative numbers are equal to positive numbers. That is probably what they are thinking. Because, you cannot add negative numbers and have them be positive numbers.	
122.	Brian	Audra was thinking all that is 1 whole and its not.	
123.	Alan	The negative numbers are lower than zero. Zero is said to be the lowest number and they are lower than the lowest.	

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124.		RT1	Okay. We have about 1 more comment and we will continue this when we come back. Meredith?	
125.		Meredith	It is like a ruler, here it has the inches one half, one and one half, two and one half, three and one half, four and one half, five and one half,	
126.			and so on. [<i>Holds up a ruler and points to the tics.</i>]	
127.		RT1	It is starting to make some sense?	
128.		Students	[<i>Murmur</i>] Ohm-Hum	
129.		RT1	Audra, I am so glad you placed one half there; it ended up in such a good discussion. Are we going to leave it there or take that one half off?	
130.		Students	Take it off!	
131.		RT1	You want it off over there. Should we continue this tomorrow? We'll continue this Friday. We are going to Rutgers tomorrow. Have a wonderful day. You were all wonderful.	