

Description: Placing integers on the number line Parent Tape: Infinite Number Line Date: 1993-10-11 Location: Colts Neck Elementary School Researcher: Professor Carolyn Maher	Transcriber(s): Schmeelk, Suzanna Verifier(s): Cann, Matthew Date Transcribed: Spring 2009 Page: 1 of 3
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1.		RT1	And, I would like some discussion from you about where certain points would be. I don't know if you would like your papers back while we are doing this or you want to do it from your memory, but I see some interesting ideas here. Yes, Alan?
2.		Alan	On the number line, I used one as the half mark between zero and two, and
3.		RT1	Okay. By the way, we call that a segment if we talk about part of the line. If mathematicians want to get really fussy, they will talk about a piece of a line, right, and that isn't infinitive, we call that finite. They call that a segment and that is what you are talking about. That piece between zero and two, right? Okay. So you thought of number one as being half way?
4.		Alan	Um-hum [Affirmative]
5.		RT1	Anyone else think of it that way? [At least four students in camera view raise their hands] Where you put one? [At least four students raise their hands] Thank you very much. What I wanting you, of course, also to be thinking about is that I want you to understand that this keeps going. And, we are just looking at this; and, we are sort of restricted to how much room we have on this overhead, aren't we? But if I asked you to place three—the whole number three—how many of you think that you know where it would be?
6.		Students	[At least two students move arms in up-ward direction]
7.		RT1	If you were to come up here and point and guess where it would be? How many think that you know where it would be? [Jessica raises hand.] Imagine this piece of a line being extended, do you think you know where it would be?
8.		Students	[Ten students on camera raise hands]
9.		RT1	Can you sort of kind of point, Jessica? Where it would be? On the overhead, there.
10.		Jessica	[off camera]
11.		RT1	How many of you agree that that is where you would place three. And, where would you place four?
12.		Jessica	Hum, I would probably put it, there. [off camera.]
13.		RT1	Okay, get the idea?
14.		Students	Um-hum [Affirmative]
15.		RT1	Do you know where you would place a million?
16.		Students	Yeah. [Laughter] Down the hall.
17.		RT1	Okay. Thanks, Jessica. Now, notice that I had my arrow going the other way. Why do you think I had my arrow going the other way? [At least four students in camera view raise their hands.] Some of you think you know why. Amy, what do you think?
18.		Amy	Because you can have negative.
19.		RT1	Okay, so where do you think I would put negative one?
20.		Students	Negative one? Oh, I know.
21.		RT1	Yes. Amy, you want to come up and put where you think you would put negative one? You all watch and see if this makes sense.
22.		Amy	Like, right there. [off camera]
23.		RT1	How many of you think that is where you would put a negative one? [At least seven students in camera view raise their hands.] Audra, are you agreeing or aren't sure?
24.		Audra	[off camera]
25.		RT1	Audra, is not sure. So, can we talk about why we would put it there?
26.		Amy	Well, because, it's not exactly, but that [off camera]
27.		RT1	Okay, so how long it would be Audra that makes sense, right, but why would you call that a negative one, right, I think that is what is confusing Audra. Anyone want to try and say why you are calling it a negative one? I'm guessing, where would you put a negative two?
28.		Amy	Negative two, would be about there. [off camera]
29.		RT1	So you are sort of telling me something about where you are putting negative numbers and where you are putting positive numbers. Kimberly, what do you think?
30.		Kimberly	I think it is negative one back there because it is beyond zero.
31.		RT1	It's beyond zero?
32.		Kimberly	Yeah.
33.		RT1	Which way beyond zero?
34.		Kimberly	That way. [off camera.]
35.		RT1	Okay, so it's in that direction? To the left of zero?
36.		Kimberly	To the left of zero.
37.		RT1	Okay. And the positive one?
38.		Kimberly	It's beyond zero.
39.		RT1	Which way?
40.		Kimberly	This way.

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41.		RT1	To the right?
42.		Kimberly	Yeah.
43.		RT1	What do you think? Alan?
44.		Alan	I think that all numbers to the left of zero would be in the negative and all numbers to the right of zero would be in the positive.
45.		RT1	How many of you think that?
46.		Students	[At least ten students on camera raise their hands.]
47.		RT1	That is what the mathematicians often do, they do exactly that, they put the numbers to the left of zero as the negative and the numbers to the right of zero as the positives and by the way since we are already into high school math we might as well give you a little bit more high school math. Do you know what they call those numbers to the right of zero and to the left of zero. Those whole numbers? Zero, one, two, three, four, five and so forth with out stopping? And, negative one, negative two, negative three, negative four, negative five? You know what they call them? Does anybody know?
48.		Students	[Remain quite]
49.		RT1	Do you want to know?
50.		Students	[At least two students in camera view raise their hands.]Yes.
51.		RT1	How many of you want to know?
52.		Students	[At least six students on camera raise their hand.]
53.		RT1	Okay. Let's see if you've ever seen this before. Thank you very much. [off camera] Can you read it?
54.		Students	Integers.
55.		RT1	Integers. Can you say it?
56.		Students	Integers.
57.		RT1	Integers. And so sometimes Mathematicians write this, this way to show you. Just incase you are reading your high school books or your bothers' or sisters' or cousins' or parents' if you see them on the shelf. They would often write them like this [off camera] They would say this is zero, here's one, here's two, something like that and to show they go on, they will put three dots. Then, they will close it. And for here, they will do the same thing. They will put negative one, negative two, etc. You don't have to show them all but that sort of says that you keep on going to the left of zero, whole numbers, and keep on going to the right of zero, and then you put in zero. They call that set of numbers they call them the set of integers. Okay. So now you know about the set of integers which you usually study when you get to pre-algebra or algebra.
58.		Erik	That's what my brothers in.
59.		RT1	Well, you can help him out if he gets into trouble. Okay.
60.		Erik	Ohm, no.
61.		RT1	I really hope that you help out your older brothers and sisters you don't think so Amy? [off camera] Okay. Anyway, so you know about these and I want us to know that they are there and just kind of think that these numbers go on and on, but the numbers we're studying right now... We're studying numbers that are not the whole numbers necessarily, but could be. Okay? They could be whole numbers but they don't have to be; and, for now we are going to worry about the ones that are positive—for now—but we could also worry about the ones that are negative sometime if we want too. Right now we are concerned about.... What about those numbers between particular integers. What do they kind of look like and were would we place them if we want to put them on that line? You know where to place your integers don't you?
62.		Class	[Students nod head yes]
63.		RT1	How many of you know how to place your integers? If I said you know make me a number line with the integers would you know how to do that?
64.		Students	[At least six students in camera view raise their hands.] Ohm-hum. [affirmative]
65.		RT1	Can you show me how that works?
66.		Erik	Well, I don't want it to go on forever.
67.		Jessica	What do you want us to go on to?
68.		RT1	Well, you see what I do, I put arrows. Once I give you an idea of what I'm doing, the arrow tells me it keeps on going like that. Mathematicians do not like to do a lot of extra work, they invent notation to make their life easier. And the notation they invent, when you see that arrow, that arrow means it keeps on going and if you wanted to show more of them to make you point or explain it to somebody you could, but that is a notation they use for convenience. Does that make sense?
69.		Students	Yes. Yeah.

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