Description: Naming points 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 4**

1)		RT1	Okay. So I see. Maybe we should talk about some of what we have here and discuss it. What do you think? Ohm. Wow, gee there are a lot of fractions on here. Good lord. That is a lot of fractions and numbers. Look at all of them. Yeah. That would be very interesting. I thought that we were talking the last few minutes before the class ended about rulers. And, I've come to learn that not all rulers are alike. You might take on a little sort of a private experiment of your own to start looking at them and seeing how the rulers are made. Do you have a ruler? Does somebody have a ruler?
2)		Jessica	[off camera]
3)		RT1	Thank you very much, Jessica. Others of you have rulers. But, if I hold the ruler, some of you have rulers here, and I see that I'm trying to imagine, if this were, making a rod, right? We go back to Erik's idea—no it was Alan's idea. If we are making a rod and I was talking about a rod that was a twelve rod, right? And I think that Alan said something about a twelve rod that I could put twelve pieces here; isn't that right? You all could imagine that, can't you?
4)		Class	Ohm-hum. [Affirmative.]
5)		RT1	If I had a twelve rod; but in my twelve rod, what Alan said very nicely and shared with us the last time. Is that all of these lengths are exactly the same. It doesn't matter which one it is. If you pulled any of them out, then you could imagine this ruler being like a rod. But, you could imagine they are all the same, but here we don't have rods, we have inches, right? Okay. We have inches. We have twelve inches on this ruler, but then we have markings on the ruler so we sort of image taking away the rod for a minute and leaving a line and keeping those markings and we were talking with I think it was David at the end of the class, talked about why it would be a good idea not to number them all one. Remember that, David? You said it would be a good idea rather than to say one and call this one call this one and call this one. Every time I wanted to measure something I would have to count up all the ones David said, didn't he?
6)		David	[David nods head yes] Yeah.

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7)		RT1	And we kind of start looking for short cuts a lot, we get kind of tired doing things over again so it is easier when we read five rather than count one and another one and another one and another one and another one. You can just read off the five, right? That's kind of convenient, isn't it? Sometimes, it a good idea to have the numbers which tells us how many of those ones we've counted-up which is what Alan is saying, how many of those rods we were counting-up. So, in some ways, you know, I want you to try and imagine moving from our rods to maybe a ruler and then moving from a ruler to what we call a number line. Because you are going to be studying number lines for a long time for a number of years. You are going to be studying the placement of numbers on a number line all the way up to high school. And, what you are going to be doing when you continue to study mathematics is that you are going to learn about more and more numbers; and, the question is where do those numbers belong on the number line. That is going to be a question that you will be asking yourself even when you take Algebra, Algebra I and Algebra II. Even as you move on past Algebra—the questions are what kind of numbers are there and where do they go on the number line? Okay? Now, this is really a very interesting idea, I think, because we often think of a line as going on and on and on without ending, you know, if I asked you what is the biggest number?
8)	14:18	Students	Nothing. It wouldn't be on ….
9)		RT1	So, if you told me the biggest number is a million, I would say I know one bigger. All you have to do is add one to it and it is bigger, right? That true?
10)		Students	[Camera focused on Caitlin]
11)		RT1	If you told me the biggest number is a google. That is a number. You can look it up
12)		Andrew	Yeah
13)		RT1	I would say I know one bigger, just add one to it, right?
14)		Andrew	Yeah
15)		Students	Yes. [A google … murmurs.]
16)		RT1	So we could imagine this line going on and on and on. Right?

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17)		Student	[Nodding their heads yes.]
18)		RT1	You could also say, what about smallest numbers. Some of you talked about numbers that were negative numbers, right? [class remains quite] You can imagine your line going on and on and on. Our question is, this line you'll learn when you get to high school geometry; but, you will learn this when you get to high school geometry, but I know that you will learn this before you get to high school geometry, we can think of as made up of lots of points….
19)		Michael	Last year in Mrs. Dominica's class we studied points and, ohm,
20)		RT2	[Off camera]
21)		Michael	Segments and sections because the number line is just a section of the big line that goes on and on
22)		RT1	That goes on for ever?
23)		Michael	forever and there is just a little section [uses two fingers clam ping to describe idea] that is taken out.
24)		RT1	Okay, that is an interesting way of thinking about it. Who else in this class studied number lines and sections?
25)		Students	[Approximately six students on camera raise their hands.]
26)	15:46	RT1	Okay. So some of you did and some of you didn't. Does it make sense what Michael is saying? That you can think of this as going on and you can think of this as being made up of lots and lots of points.
27)		Students	[Inaudible murmur]
28)		RT1	Lots and lots of points. And because there are so many points here, we don't know how many points there are since they go on and on. We often use the term—mathematicians usually say that there are—infinitely many points that make up this line. Infinitely many. Ever heard that before? You've heard of infinity, haven't you?
29)		Students	Um-hum. [Affirmative]
30)		RT1	We often talk about infinitely many points. And so, yes, Brian?

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31)		Brian	A lot.
32)		Students	Yes. Infinity.
33)		Erik	The definition of infinity is that it keeps going, it never stops.
34)		RT1	Yes. It never stops. Okay, so, never stops, never ends. So the numbers we can put on this line, does it ever stop or end? How many numbers we can put on this line?
35)		Students	No. It would take a long time.
36)		RT1	It would take a long time. So the issue, then of course, is that we are going to study pieces of this number line and that is sort of what Michael is saying. And we are going to talk about a piece of this line that goes on and on and try to find out about numbers we are learning about and were they belong on it. Okay?