

## **Algebraic Reasoning Starts Early**

<https://youtu.be/3X3cytuEsr8>

Teacher: So tell me what you're thinking about

Student: Okay Mrs. D

Teacher: Are you going to build the next one?

Student: Well if there's two here, four here, and like well there's just like two of these and then there's two ones here and then three ones here then

Teacher: Okay, So how did you know to build it like that? What did you

Student: Because there was two here, four here, three here, and then there was supposed to be four here

Teacher: Four what?

Student: Because there's three here, like two here like one and one then there's like two, two, three, three. Then there's supposed to be four, four

Teacher: Okay, so if you think about it then, what about for position ten? What should go for position ten? What would it look like?

Student: Uh, I'll show you Mrs. D.

Teacher: Can you tell me what it would look like?

Student: Well you would have ten of these so it would probably go up to here and then up to here. So I'm going to start to build and I can tell you Mrs. D we're going to need more blue

Teacher: Yeah, okay. Well there's some more in the bag over there. So, I have a question for you. How did you know that this was one?

Student: Because, there was one here, then there are two here, there are two here, there's three ...here, there's three here, there's four here, there's four here, then there's supposed to be ten

Teacher: Hmm. Can you say that again? I'm going to listen really carefully to what you're saying. How did you know?

Student: So, because there were, so the number one is here and then you put one tile here and one tile here. Two here, two here, three here, three here, four here, four here, ten here, ten here

Teacher: What about position five? What would five look like?

Student: Time to move you over

Teacher: Okay, you can do that

Student: Okay, I don't care if it looks like that

Teacher: What do you think? Not sure? Do you want to look at it again?

Student: Mhmm ... One, one, two, two, three, three, four, four, five, five. Two?

Teacher: Hmm

Student: I think I would have to put six here

Teacher: Want to try and see?

Student: But it's the number five, like me

Teacher: Mhmm  
Student: Where'd I put that. That there then  
Teacher: Hmm, that one looks like this one over here  
Student: Hahaha  
Teacher: What do you think?  
Student: I think it's good  
Teacher: Okay, so now how many blue tiles do you have in this one?  
Student: Ten  
Teacher: Ten..and how many tiles all together?  
Student: Eleven  
Teacher: Eleven...so let's look at, let's look at position ten over there. Thank you. And, could we, let's think about what we did for our columns, how many should be in the columns?  
Student: Ten  
Teacher: There's ten...in each, there are ten there, but how many should be in each column? Remember this one has one in each column, this one has  
Student: Two in each column  
Teacher: This one has  
Student: Three in each column  
Teacher: This one has  
Student: Four in each column  
Teacher: This one has  
Student: Five in each column  
Teacher: So, how many should be in each column there?  
Student: Ten  
Teacher: Ten... so how many are in there?  
Student: There's one, two, three, four, five.  
Teacher: Oh  
Student: Haha  
Teacher: So now do you think there's ten in each column?  
Student: Yep  
Teacher: Think we should double check?  
Student: Yes. One, two, three, four, five, six, seven, eight, nine, ten. One, two, three, four, five, six, seven, eight, nine, ten  
Teacher: So how many would that be altogether? How many blue?  
Student: Eleven  
Teacher: There'd be, ooh.. so, if you're thinking only about the blue tiles now  
Student: Ten  
Teacher: For number ten  
Student: Ten  
Teacher: There's ten in each column

Student: Yep  
Teacher: How many would that be altogether?  
Student: Eleven  
Teacher: Okay  
Student: Counting the yellow?  
Teacher: Not counting the yellow  
Student: Ten  
Teacher: You think there's ten?  
Student: Yes  
Teacher: Let's count and see  
Student: Wait, altogether?  
Teacher: Altogether. How many do you think would be there?  
Student: Ding ding...thirty  
Teacher: Why thirty?  
Student: Wait, no, twenty!  
Teacher: Why twenty?  
Student: Because ten and ten makes twenty  
Teacher: Oh okay  
Student: Let's count  
Teacher: Another column of ten, what do you think it would be if it were one hundred?  
Student: So if you're saying we had a card for one hundred there would be one hundred in each column  
Teacher: What would it look like? What would it look like?  
Student: I'll show you