

A Talk about a Ten Frame with Grade 2 students in a Tier 2 setting

Note: These Math Talks are conducted with the whole group about 2x week and are based on the “Number Talks” work of Ruth Parker and Cathy Humphreys (Making Number Talks Matter: Mathematics Education Collaborative, 2015). I have adapted the procedures recommended in their book and trainings to maximize discourse, build confidence, and model explicitness, while providing formative opportunities for the teaching team in the Math Learning Center to hear how their students are responding and explaining their thinking about concepts they have been working on small group.

T: All fall we have been working on Making Ten, so I want you to look at this and there are two ideas that I want you to think about. One, how many dots are there? And two, how do you know? How many ways can you talk about or show mathematically what you see here? So, in a Number Talk, we start here (thumb on chest) to give everybody time to think. So, we are looking at the dots and we are thinking, how many are there and how do I know? And if you know one way, if you see it a different way, if you see it a different way, so I am looking for at least one thumb...I see at least one thumb, I am waiting for at least one thumb from everybody, I'll wait... (30 seconds)

Alright, who would like to raise a hand and tell me how many dots do you see? Emmilyn, how many?

S: Seven

T: Emmilyn says seven. Is there any different idea? A different idea of how many...you see a different number? Hayley.

S: I realized a way that you could turn it into 7. If you could grab one of the three from the bottom and bring it to the top...

T: So, you agree it is 7. Okay, go ahead, you were telling me how you see 7, tell me again.

S: So, like if you have 4 plus 3 it would equal 7.

T: So, you see 4 and 3, like that?

S: Yeah...because, if you would want to make the 7, you would grab one of the parts of the 3 and move it to the top and then it would be 7.

T: One of these up here? Is that what you want to do? Okay, so you want to then take one of the 3 and you want to move it up here, like this?

S: Yes.

And what does it make this now, then?

S: It makes it 5...

T: It makes it 5 and...

S: And then it turns it into 5 plus 2.

T: Oh, so you really saw the 5 (*meant, 4*) and 3, but then you changed it to 5 plus 2. Okay. Who saw it a different way? Hayden?

S: 2, 4, 6, 7.

T: So, you were counting by twos? So you saw 2, 4, 6, 7, like that? Alright. So if I was to make an addition sentence, what would it be?

S: 7 take away...1, I mean 7 take away...wait a minute, we're trying to...what are we trying to...?

T: So, if you want to make an addition sentence, I saw that you said this was 2, and this was 2, and this was 2, and this was 1.

S: Oh.

T: So, how would you make that into a mathematical se...?

S: I would do 7 take away 2, take away 2, take away 2, equals 1.

T: Oh, wait...So, you would go...starting with 7, takeaway 2, which would be...so if I took away 2...

S: Yeah.

T: So then I took away 2 more.

S: Yes.

T: Then took away 2 more.

S: Yes.

T: And then took away 1...what am I left with?

S: Zero.

T: ...if I took them all away...

Ss: Zero.

T: Zero, so I see. You kind of eliminated them as you went and were left with 0...if you took them all off. Okay, that is an interesting way to go...

T: Alright, Sebastian, what do you see?

S: I see that 7 plus 3.

T: Tell me more.

S: And 7 plus 3 equals 10.

T: Okay, tell me more about that. Where do you see the 7?

S: I see the 7 in the 4 plus 3.

T: Okay, so you see those lines of 4 plus 3, like that? This is the 4 and this is the 3? And that equals 7, yes?

S: Yes, and if you add three more, it would equal 10.

T: Where did you get those 3 more?

S: Because there's 3 blank.

T: Oh, so if you add what was here...to the 7...so it was the blank 3,

S: Yep!

T: ...equals...

S: Ten!

T: So there were 10 squares all together. Alright. So at this point, boys and girls, I would like you, with your partner, I want you to turn eye-to-eye, knee-to-knee...Show me you know how to do that...Can you talk to your partner, and I would like the person who has the...I am noticing a lot of zippers today, if you have the zipper, you get to go first...If you both have a zipper, the person who has the hood gets to go first. Go, talk about what you see up there.

S: 7, 3 plus 4 equals 7. And if you add three more to it, you can get 10. That's how I see it....It's your turn.

S: I notice that there was 3 blank and then there were one more, so that makes 4. And then the 3, and I saw the 2 left blank, then I know it was 3 and 4 plus 3 equals 10.

S: If 10 takeaway 3 equals 7, so, but if ever we use like take away with the ten...

T: Mathematicians...I heard some great thinking. Alright, who has not had a chance to talk yet and would like to share one idea either you said or your partner said? Jaelyn?

S: (inaudible) I see 4 (like a square) and 3 (like a triangle).

T: So you had 4 add 3 equals...

S: Seven. Alright, what else? Yes, Ashley?

S: I don't have anything to say, just I couldn't hear her.

T: Okay, well, could you see what I did? What do you think she said?

S: That 4 plus 3 equals 7.

T: Mhmm, and where did she see the 4?

S: In the square?

T: Mhmm, thanks for using your interpretation skills. Yes, Bianca.

S: I see 3 plus 3 plus 1 equals 7.

T: So tell me where you see 3 plus 3.

S: On the bottom.

T: This 3?

S: ...and part of it on the top.

T: Oh, so you saw a double there. Like this?

S: And then plus 1.

T: And then plus the 1 over here. So we had 3 plus 3 plus 1. That's a doubles plus one, isn't it? We are going to pause there...and this is the one that Sebastian and Anderson were talking about, too. A doubles plus one.

So I want you to look this and tell me...how does this help us with Make 10? I want you to think about: how does this picture help us know and understand Make Ten? And can you make a subtraction sentence using this picture? That will be my last question, but show me you know here. That's a challenge. I see lots of addition...well, I see one subtraction, if you took them all away...But I want you to think about 10 and subtraction. What could you do with that?

I'll take two ideas. Yes, Emily.

S: Ten takeaway 3 equals 4.

T: Tell me about that, where is the 10?

S: So the 10 would be filled up.

T: So if it was the whole thing, it was full and we had ten. Yes. And then what happened?

S: You took away the 3.

T: These 3 went away.

S: And then I had 4.

T: How many are left here?

S: 7.

T: Alright, last thought. Is there anybody that I haven't heard from? Brianna, have you had a chance today? Last thought. Go.

S: In the middle I see 4.

T: This 4?

S: Yeah. And then on one side there's a line over there...

T: This one?

S: Yeah, and then there is 2, equals 3.

T: Uh-huh, so wait, what have we got here, 2 plus four plus one equals...?

S: 7.

T: Alright, nice job mathematicians.