KATY HOLMES: So this lesson involved them adding up multiple two-digit numbers together. I chose it because we've been struggling with adding those multiple-digit numbers together and also subtracting across three-digit numbers with zeros. Students will be given a sheet that has different objects they can buy. That they're—they have $300 to spend on toys for other students, and so then they have to be able to figure out how much they can buy as close to $300 without going over. They'll be taking the $300 and then subtracting that across the objects they're buying. I hope to see them using their place value blocks, using those hundreds, tens, and ones to help them see the problem out. I hope to see them using different strategies when it's adding, whether it's making a ten or regrouping. Some misconceptions I— that I expect to see are them struggling with subtracting across the zeros and not regrouping correctly. And then also some basic calculations of adding the tens—the hundreds, the tens, and the ones. This group of kids, this class, is definitely struggling with the place value behind subtracting and adding multidigit numbers together, especially when it involves the two zeros. I always like to start my math lessons on the carpet as a whole class. That way, [with] the students, we can kind of go through a minilesson and can kind of review some of those specific strategies that I want them to focus on when it comes to their tasks they're going to do at their seats. They're going to start off with the open equation they're creating and—

TEACHER: Keep going.

KATY HOLMES: With that, we're going to be able to see some of the different strategies they're going to apply to adding three two-digit numbers together, so that when they're back at their seats, they can use those strategies to apply to adding multi two-digit numbers together.

KATY HOLMES: Whiteboards, marker, eraser, carpet. All right. So we have some directions on the board. All right. Are we ready?

STUDENTS: Yeah.

STUDENTS: Yes.

KATY HOLMES: Eyes on the smart board. All right, so we're—so your job is you need to create the closest possible sum. Remember we talked about what does the sum mean?

STUDENTS: The answer.

KATY HOLMES: To what?

STUDENTS: To an addition problem.

KATY HOLMES: To an addition problem. So the closest possible sum to 100 without going over, by filling in the boxes using the whole numbers one through nine. So do we have zero?

STUDENTS: No.

KATY HOLMES: No. What—so you can use those numbers no more than one time each. Now, how many addends do we have up there?

STUDENTS: Two.

STUDENTS: Three.

KATY HOLMES: We're adding a 2 plus 2 plus 2. All right? Go.

STUDENT: What?

KATY HOLMES: So you're going to have to make [inaudible] a two-digit number plus—plus a two-digit number. You can only use the numbers one—You've got a problem, solve through it.

STUDENT: It's hard.

KATY HOLMES: I know. It's okay, though. Look at me. There's no wrong answer, okay? All right. I'm going to give you about 30 more seconds, then you're going to be able to talk to your partner.

STUDENT: Yeah.

KATY HOLMES: All right. Super focus. All right. I want—it's okay, it's okay. I want you to talk with—talk with your partner about your equation. How did you solve this equation?

STUDENT: I did 23—plus 24 plus 52.

STUDENT: I did 35 plus 41—

STUDENT: What does yours equal?

STUDENT: I didn't add it up yet.

STUDENT: Wait, you're not going—oh, yeah, you're going over.

KATY HOLMES: Why don't you start over here? Then you have lots of space.

STUDENT: You're going a little over.

STUDENT: I know. I erased the board.

STUDENT: Seven for that.

KATY HOLMES: Walk me through what you did.

STUDENT: So, I, um, so I, I put 24 plus 35 plus 16. So 4 plus 5 is 9, plus 6 is 15, so I put the one on top of the tens, and then I put the 5 on the one, so 1 plus 2 is 6, and 6 plus 3 is, um, 6 and then s—6 plus 1 is 7, so I wrote 75.

KATY HOLMES: Very good. What does this one mean up here?

STUDENT: Um, one of the 10—the 10 of the 15 just got added to the 10.

KATY HOLMES: Do you mind sharing that on the board in a minute when we do it? Thank you. Awesome job, Miguel.

STUDENT: And then 66, plus 28, would equal 78.

STUDENT: Yeah, 'cause yours only have three di—three more ones ahead of mine. But if I only added—so if I only took away the six and—and I put it to a nine, and if I—then I put it to a nine, I would have 78.

STUDENT: Yeah.

STUDENT: You're almost close, but yours is a little bit more bigger than mine.

STUDENT: Just three more ones ahead.

STUDENT: So then you can have six over here.

STUDENT: Six.

STUDENT: And then—

STUDENT: That's more than 100.

STUDENT: Yeah. I don't know.

STUDENT: Ah, I'm gonna erase this, change this to a two, one.

STUDENT: That's seven.

STUDENT: So 12, 1, 2, that's 24. What can I use? 24 plus 24.

KATY HOLMES: Who would like to share their thinking? All right, Miguel.

STUDENT: Um, so I put 24 plus 35 plus 16.

KATY HOLMES: Let me get a new [inaudible] . All right, so Miguel's equation.

STUDENT: Is 24 plus 35 plus—

KATY HOLMES: Twenty-four.

STUDENT: Plus 35 plus 16—

KATY HOLMES: Plus 16.

STUDENT: And so, um, so, so I know that 4 plus 5 is 9. And then there's—and, um, 9 plus 6 is 15. So I put the 10 of the 15 into the tens.

KATY HOLMES: Very good.

STUDENT: And I put the five under the ones, so I counted 1 plus 2 is 3. 3 plus 3 is 6. And 6 plus 1 is 7.

KATY HOLMES: Awesome job. Give him a r—give Miguel a, a round of applause for that one. Nice job, Miguel. He used—did he repeat any numbers?

STUDENTS: No.

KATY HOLMES: No. Did he get as close as he could to 100 without going over?

STUDENTS: Yes.

KATY HOLMES: Very good. Anthony?

STUDENT: So, that was hard. I did 9 plus 2—I mean, 9 plus 3 equal—

KATY HOLMES: Hold on, can you tell me your whole equation first?

STUDENT: Okay, I did 12 plus 23 plus 49.

KATY HOLMES: I'm sorry. 12 plus what?

STUDENT: 12 plus 23.

KATY HOLMES: Twenty-three.

STUDENT: Plus 49.

STUDENT: [inaudible] two repeated numbers.

KATY HOLMES: Oh, he does, but that's okay. We'll let it slide for right now. Go ahead.

STUDENT: So 9 plus 3 equals 12.

KATY HOLMES: So he's starting with the two bigger numbers. Nice strategy.

STUDENT: And I added two and it equals 14.

STUDENT: This is just like mine.

STUDENT: And I regroup my nine.

KATY HOLMES: Why?

STUDENT: Because it equals more than nine.

KATY HOLMES: It equals more than nine, so we got to put it in the—?

STUDENT: Ones.

KATY HOLMES: The tens place.

STUDENT: And I added 4 plus the 2 up there.

KATY HOLMES: Is there something we need to still do with this number?

STUDENT: Yeah. He still needs to do something.

KATY HOLMES: What does he have to do?

STUDENT: He needs to—he needs to put the four in the ones place, and then he needs to count up the tens.

KATY HOLMES: Very good. Thank you for helping him out.

STUDENT: So then I did 4 plus 2 plus 2, and it equals 8.

KATY HOLMES: So 4 plus 2 plus 2 equals 8. Very nice. Give h—Anthony a round of applause for that one.

STUDENT: Can I show you mine?

STUDENT: Next is—

KATY HOLMES: Let's do one more.

STUDENT: I still have one in my head.

KATY HOLMES: Mia, can you tell me your equation?

STUDENT: I did 14 plus 26 plus 34.

KATY HOLMES: Now, what strategy did you use?

STUDENT: I added up 14 plus 26.

KATY HOLMES: So what did you build first? What are those called?

STUDENT: Tens and ones.

KATY HOLMES: She did tens and ones. So for the number 14, how would we build the number 14?

STUDENT: Fourteen, you would—we would have one ten—

KATY HOLMES: One ten.

STUDENT: —and four ones.

KATY HOLMES: And four ones.

STUDENT: And then—and then two tens, and six—and six ones. And then I counted them up—I counted them up in all, so—and the tens were 30, and—

KATY HOLMES: Do we have all of our numbers? Do we have all of our models made?

STUDENT: No.

KATY HOLMES: So do we need one more model? What about this number, Kamille?

STUDENT: Thirty-four.

KATY HOLMES: So how many tens?

STUDENT: Three tens and four ones.

KATY HOLMES: Let me make those look like ones.

STUDENT: Ms. Holmes?

KATY HOLMES: Yes?

STUDENT: Actually, instead of doing that, I added these two together, and then I did these ones again.

KATY HOLMES: Oh, that's a good strategy too. So let's add this one together. So how many ones do we have?

STUDENT: We have 14.

KATY HOLMES: Juliana?

STUDENT: Fourteen.

KATY HOLMES: We have 14.

STUDENT: And we have six—60 tens.

KATY HOLMES: Do we have 60 tens?

STUDENT: Six.

KATY HOLMES: Six tens.

STUDENT: Sorry. I mean—

KATY HOLMES: Which equals the number?

STUDENTS: Sixty.

KATY HOLMES: Sixty. So we could take 60 plus 14 and get?

STUDENT: I was gonna say it was actually 70.

KATY HOLMES: Seventy-four. Nice job, great job working through that. That was hard. That was a difficult one. Nice job. All right. So go ahead and erase your boards for me.

STUDENT: Look what I did, Ms. Holmes.

KATY HOLMES: Oh you made a 200, very nice.

STUDENT: It is okay, London.

KATY HOLMES: All right, so go ahead and erase your boards, and go back to your seat and you will need a pencil.

KATY HOLMES: All right, are you ready, kids?

STUDENTS: Aye-Aye, captain.

KATY HOLMES: All right, so, I have a big challenge for you today. Yes.

STUDENTS: No.

KATY HOLMES: You are going to get to go shopping for other students today.

STUDENTS: Oh, yeah.

KATY HOLMES: Okay. So, you, you and a partner, you are going to have $300.

STUDENTS: Yay.

KATY HOLMES: Okay. $300. To spend on toys that will be donated to a charity. [inaudible], please. This is the only store that you're going to. Okay. So, you're going to have to determine and figure out what combination of toys can you buy with your $300. Because you want to try and spend all of that money, right?

STUDENTS: Yes.

KATY HOLMES: Yes, you do.

STUDENTS: [crosstalk].

KATY HOLMES: You're going to want to spend all that money.

STUDENTS: [crosstalk] go over.

STUDENTS: [crosstalk].

KATY HOLMES: So, I am going to give you your store.

STUDENTS: Ms. [inaudible].

KATY HOLMES: So... yes, sir?

STUDENTS: Don't team me up with London.

KATY HOLMES: Okay.

STUDENTS: He doesn't want [inaudible].

KATY HOLMES: I got that. All right.

STUDENTS: I want [inaudible].

KATY HOLMES: Why don't you come and sit over here, Sebastian?

STUDENTS: Me and you are partners, again.

STUDENTS: Do you want to go first, [inaudible].

STUDENTS: [crosstalk] partnering.

KATY HOLMES: Can you three work together?

STUDENTS: [crosstalk].

KATY HOLMES: Thank you.

STUDENTS: I am gonna be.

STUDENTS: [crosstalk].

STUDENTS: Oh my gosh.

STUDENTS: It's so pleasant because [inaudible].

STUDENTS: [crosstalk].

STUDENTS: Wow.

STUDENT: Oh, okay, this [crosstalk].

STUDENT: This cost $14. 65. 12. 22. 36. 15. 67. 40. 19. 48. 65. 65. 70.

STUDENT: 56.

STUDENT: 56.

STUDENT: 75 [inaudible].

KATY HOLMES: So, remember, what's your goal, that you have to spend?

STUDENTS: $300.

KATY HOLMES: $300. Okay. Can you go over $300?

STUDENTS: No.

KATY HOLMES: No. Now—

STUDENTS: [inaudible].

KATY HOLMES: One second, London. Now, at the bottom down here, so at the top you're going to put the items that you're purchasing. Okay.

STUDENTS: And how much it cost.

KATY HOLMES: And how much it costs because that will help you out when you're solving your equations.

STUDENTS: [crosstalk].

KATY HOLMES: And then, at the bottom, I want two different ways to solve your equation. Okay?

STUDENT: [inaudible] spell.

STUDENT: No, not all the expensive stuff. Then we're just gonna run out of money that fast.

STUDENT: Well, the expensive stuff, so big and good.

STUDENTS: [crosstalk] do.

STUDENT: Okay, we can buy this stuff and—

STUDENT: No, no that [inaudible].

STUDENT: Let's put—

STUDENT: No, this can go for the boys and girls, so when they get [inaudible] they're scared, they can hold [it] and snuggle up.

STUDENT: Okay, I want this.

STUDENT: Oh my gosh, you're gonna waste all our money.

STUDENT: I'm not.

STUDENTS: [crosstalk].

STUDENT: Remember, we have $300, in ten minutes.

STUDENT: [inaudible] go in to the 100s, you know. Maybe this go past 300.

STUDENT: No, it isn't, trust me.

STUDENTS: [inaudible] video games things.

STUDENT: Oh, how about the video [inaudible].

STUDENTS: No, that's too much.

STUDENTS: No, it isn't.

STUDENTS: Okay, fine. I won't—

STUDENT: That's in the 90s.

STUDENT: No, this and the boat. This and the boat.

STUDENT: That's gonna be like, $1000. Because nine plus nine equals—

STUDENT: [inaudible] yeah, so [inaudible] is 65.

STUDENT: 65. Okay, so that's—

STUDENT: So, five plus five, equals 10.

STUDENT: Yes [inaudible].

STUDENT: And that equals an 11. So—

STUDENT: No, oh yeah, [inaudible] equals 11. So we only spent $110.

STUDENT: Uh, that's okay, we have $300.

STUDENT: Let's get a [inaudible]. First, let's write [inaudible].

STUDENTS: We're not near $300 yet.

STUDENT: Doll for 65, right?

STUDENT: Yeah.

STUDENT: Okay.

STUDENT: So, now, let's get a [inaudible].

STUDENTS: [crosstalk].

STUDENT: Nine minus zero is... plus zero equals nine. One plus zero equals nine.

STUDENT: [crosstalk].

STUDENT: And two so, $200.

STUDENT: We already spent $219.

STUDENT: Wait. No. No, that's wrong.

STUDENTS: Gonna waste all our money.

STUDENTS: No, I don't want [crosstalk].

STUDENT: I made it look like it's a ten, but then the one. All right.

STUDENT: Oh.

STUDENT: That stays as a one, that's a two and that's a nine. There.

STUDENT: Yay. $29.

STUDENT: First I thought we had already spent $200.

STUDENT: I know, right?

STUDENT: What do you want to get?

STUDENT: Um—

STUDENT: Puppy?

STUDENT: The puppy looks so cute.

STUDENTS: I want to be [crosstalk] three.

KATY HOLMES: Why don't you [crosstalk]—

STUDENT: Okay. Put in there jump rope.

STUDENT: Jump rope? Okay.

STUDENT: So, J-U-M-P.

STUDENT: Oh, M-P. Jump rope. O. There.

STUDENT: 17. We only have 17.

STUDENT: Three, four, five, six, seven.

STUDENT: Of these. We need more than 17.

STUDENT: Don't forget, we're also getting—

STUDENT: Thanks.

STUDENT: And one—

STUDENT: See. And we're also getting—

KATY HOLMES: What number are you building?

STUDENT: We're building, um, that and that. I mean, that and that.

KATY HOLMES: Okay, so I am going to ask you again, what numbers are you building?

STUDENT: Oh, 40 and 75.

KATY HOLMES: Okay.

STUDENT: 40 and 75, that's easy. You build...I will build 40, you build 75.

STUDENT: Okay, I have them. Let me put my fours back, because I haven't built that [inaudible]. Okay.

STUDENT: Okay.

STUDENT: So, that is, one, two, three, four, five, six, seven, eight, nine, 10. So, that's 110 out. That's 115, that's 115, already.

STUDENT: Okay, I am scared.

STUDENT: We still have like $200 left.

STUDENT: Aw.

STUDENT: Ah.

KATY HOLMES: Well, why don't you start with what you had?

STUDENT: Yeah, these two.

KATY HOLMES: Okay.

STUDENT: Now, what else can we add [inaudible]. Then, we're gonna need something else to add to it, to see if it makes...We're over 100.

STUDENT: Yeah, but we still have $300. See.

STUDENT: Oh right, 300. Yesterday we did 100, so—

STUDENT: The dog is 40.

STUDENT: We only... We have 16 ones, right there. [inaudible].

STUDENT: Give you two [inaudible] 10.

STUDENT: 41, so what's 41—

STUDENT: So, 41—

STUDENT: So, 41 is, um, what is it again?

STUDENT: 41 is what?

STUDENT: I know it's past... It's in the 200s. I just don't know what number it is.

STUDENTS: [inaudible] game is—

STUDENTS: [crosstalk].

STUDENT: 200.

STUDENT: 41.

STUDENT: It's 200. It's probably 241.

KATY HOLMES: [BACKGROUND] Why don't you do the same thing over here?
[BACKGROUND] So what's about—what's, what's the sum of this?

STUDENT: Fourteen.

KATY HOLMES: Okay? So if this is 14?

STUDENT: And then we're also buying the rubber duckies.

STUDENT: But we can't do the same thing.

KATY HOLMES: There you go. Why do we need to do that?

STUDENT: Because there's a one—there's a tenth.

KATY HOLMES: Yeah, because there's a one in the tenths place. So now let's solve this side.

STUDENT: And we're buying the rubber ducky.

STUDENT: Nineteen.

KATY HOLMES: So do we need to change this sum? [BACKGROUND] There you go. Now. All right. So, Cameron, what are you at now?

STUDENT: We are at 200—194.

KATY HOLMES: All right. So you're at 194. How much are we trying to get to?

STUDENT: Three hundred.

KATY HOLMES: Three hundred.

STUDENT: We're also on the rubber ducky.

STUDENT: And this, this heart.

STUDENT: And the tractor.

KATY HOLMES: Okay. So what's your second equation you could do then?

STUDENT: 67 plus 12.

KATY HOLMES: Plus 12? Okay. So do that equation.

STUDENT: And then, the tractor and the airplane. And then 22 plus 36.

KATY HOLMES: So here, let's do this. How much do you have now?

STUDENT: Yes.

STUDENT: No.

STUDENT: Yes.

STUDENT: Yeah. I subtracted one. It was supposed to be subtraction. I messed up. I messed up.

STUDENT: No. That's how much money we have left. Wait, is that supposed to be something?

STUDENT: Yes, it is.

STUDENT: No, no. It's supposed to be like this. Oh no, it's actually supposed to be subtract. But then, it's going to be zero, zero, zero—

STUDENT: Wait, no, no.

STUDENT: That's how much money we have.

STUDENT: [BACKGROUND] That's nine, that's seven, and that's a two. So 279—

STUDENT: I thought it was 200.

STUDENT: Now, 14 is a yo-yo. So now, what do you want to buy? Because we only have $21.

STUDENT: Well, another tractor, for sure.

STUDENT: We can't. We needed one more dollar and then we can get that. We could get—we can only get a jump rope, ducky, and a yo-yo, and a ball.

STUDENT: Okay. Let's get it.

STUDENT: So which one is it?

STUDENT: Oh, okay. Um, well, since the ducky is less cheap—since the ducky is more cheaper, let's get a ducky.

STUDENT: Okay. So 279 plus what?

STUDENT: 12.

STUDENT: That's a ducky. Let's write ducky. So 2 plus 9 is 11. Oh no, I think we're past our budget. So let's see.

STUDENT: I'm using tens and ones and he's, he's like just counting.

STUDENT: No. I'm counting.

KATY HOLMES: You're regrouping?

STUDENT: Yes.

KATY HOLMES: Yes? All right. Keep, keep going at it. [BACKGROUND].

STUDENT: We could only buy one of these. Which one?

STUDENT: We can buy both.

STUDENT: Then we will, like, have zero dollars left.

STUDENT: Yes, which I know is all our money.

KATY HOLMES: Very good.

STUDENT: Oh yeah, we have three—

STUDENT: One dollar left.

STUDENT: We only have one dollar.

STUDENT: Oh yeah, you're right. We could.

KATY HOLMES: What are you all buying?

STUDENT: Okay.

KATY HOLMES: Okay? And then I need two different explanations down here of how to solve it.

STUDENT: Okay. So we got a board game.

KATY HOLMES: Or do you want me to give you—here, let me give you a new one.

STUDENT: Okay.

KATY HOLMES: Okay.

STUDENT: And then I had three then seven...

STUDENT: And this toy is close to ... So, these three toys alone are giving your full [crosstalk].

STUDENT: Seven plus six equals ... it equals 13. So, 139. And I get the nine with it, so I get one ... And that would equal 238, and then it would be 299.

KATY HOLMES: So, did you say it was 298 or 299?

STUDENT: 299.

KATY HOLMES: All right, so can you show me another strategy then, of how to get that answer?

STUDENT: Mm-hmm (affirmative).

KATY HOLMES: Okay. So, in this box show me another strategy of how you got that answer.

STUDENT: Okay. One, two...

STUDENT: Stop!...

STUDENT: We, um, we found some of the lowest items that we could find. So, we did yo-yo, and the ducky, and then the, um, giraffe.

KATY HOLMES: Okay.

STUDENT: And stuff like that.

STUDENT: And the ball.

STUDENT: So, then we, um, als—Do you know what we did? We made the biggest numbers. Then, we added them all together and it made, it made, um, 200 and something.

KATY HOLMES: Okay.

STUDENT: We're not very sure.

KATY HOLMES: (laughs) So, have you figured out your whole total yet that you've spent?

STUDENT: No.

KATY HOLMES: No. Okay, so that's your next step.

STUDENT: Yes.

KATY HOLMES: Okay?

STUDENT: Okay.

KATY HOLMES: So, I see ... I see you have some great equations here, but now I want a whole total of what you've spent.

STUDENT: Um, do we put it on the back? [inaudible 00:01:44]

KATY HOLMES: You can put it on the back.

STUDENT: Okay.

KATY HOLMES: Okay, and then you can give me another way of how you solved it.

STUDENT: Okay.

KATY HOLMES: Okay?

STUDENT: Oh, I know. You can, um, add those two together and then get the answer. The two answers together and then you can get the answer.

KATY HOLMES: Yes, but then I want another way of... Another strategy of how to solve it.

STUDENT: Okay.

KATY HOLMES: Okay?

STUDENT: I'll—

KATY HOLMES: You got it. Keep going.

STUDENT: 'Cause we don't know how to di ... 'Cause if we, if we want to subtract the one, we have to add them first and then we have to subtract them.

KATY HOLMES: Okay, why do you ... Why do you think we need to subtract?

STUDENT: Because if we, um, if we added them it would just go, uh, higher than ... It would probably go higher than 300.

KATY HOLMES: So, do you think that you bought too many toys?

STUDENT: Maybe.

STUDENT: I would erase some.

STUDENT: We erased the bolt—boat.

KATY HOLMES: Okay, did you erase it in your equation though?

STUDENT: Yeah.

KATY HOLMES: Okay ... So, I see one, two, three, four, five, six, seven. One, two, three, four, five, six, seven.

STUDENT: One, two, three, four...

KATY HOLMES: Okay, so let's start with this.

STUDENT: Five, six, seven, eight, nine, ten, eleven.

KATY HOLMES: So, do you think that you've gone over... Aaron, do you think you've gone over 300 dollars?

STUDENT: Yeah.

KATY HOLMES: Why?

STUDENT: Because there's 98. There's [crosstalk 00:02:56]. There's two big numbers in there.

KATY HOLMES: There's two big numbers.

STUDENT: That's close to 100.

KATY HOLMES: There's stuff that's close to 100. Okay. So, why don't you work on figuring out something else you can get rid of?

STUDENT: Uh-huh (affirmative).

STUDENT: One, two, three, four, five ... One, two, three, four, five, six, seven, eight...

KATY HOLMES: If you want to subtract, that's fine. That's a great strategy to use, but what are you gonna have to start with if you're going to subtract?

STUDENT: I have to start with the big number.

KATY HOLMES: Which is what?

STUDENT: 98.

KATY HOLMES: Is that your big, overall number?

STUDENT: Yeah.

KATY HOLMES: Is it?

STUDENT: Yeah.

KATY HOLMES: Read your equation.

STUDENT: It is the biggest one.

KATY HOLMES: Read your equation.

STUDENT: I'm gonna do this first.

STUDENT: You have 300 dollars to spend [inaudible 00:03:54]. What combination of toys can you buy in order to spend all your money without going over 300?

KATY HOLMES: So, what's your big number?

STUDENT: 98 [crosstalk].

KATY HOLMES: Aaron, what's your big number?

STUDENT: 98.

KATY HOLMES: How much money do you have to spend?

STUDENT: 300.

KATY HOLMES: So, what's your big number?

STUDENT: 300?

KATY HOLMES: 300. So, what do you need to start with if you're going to subtract?

STUDENT: The 300.

KATY HOLMES: The what?

STUDENT: The 300.

KATY HOLMES: The 300. So, you have 300. Okay? So, that can be one strategy you use is to start with 300 and subtract down. Why don't you get your whiteboard out and start helping him with the equations?

STUDENT: We have used two duckies...

STUDENT: I checked off everything that we got. Everything that we got.

STUDENT: I feel like we're missing something, or I think it's just that, um, that they're really expensive.

STUDENT: Yeah.

STUDENT: It ... So, you already got, you already checked out ... We got a puppy, remember?

STUDENT: That's what I checked off!

STUDENT: I didn't put that.

STUDENT: Oh. (laughs)

KATY HOLMES: All right, so explain to me your two different equations then.

STUDENT: Okay, um...

KATY HOLMES: So, what is this equation showing?

STUDENT: It's equa—This equation's showing the, um, lower numbers. And then, um, it's adding all the lower numbers together to make, um, a bigger number.

KATY HOLMES: Okay. So, you took all of the lower cost items and added those together, okay.

STUDENT: So, can I just put the lower items to make a big number?

KATY HOLMES: Okay, good strategy. All right, so what's your ... What's this equation showing?

STUDENT: It's, um, showing, um, the total of ... It's a total of all the money I spent.

KATY HOLMES: So, you took ... Okay, so you took over here to get these two totals?

STUDENT: Mm-hmm (affirmative).

KATY HOLMES: Okay. And then you added this total and this total...

STUDENT: Uh-huh (affirmative).

KATY HOLMES: And that's your grand total?

STUDENT: Yes.

KATY HOLMES: Got it. I get it now.

STUDENT: Mm-hmm (affirmative).

KATY HOLMES: All right. So, can you show me...

STUDENT: How ... What I did to make the problems.

KATY HOLMES: Yes, or on the back show me using another strategy to solve this equation.

STUDENT: Um, what equation? Um, which one is—

KATY HOLMES: This equation.

STUDENT: I know, I know, I know. 106—

STUDENT: Um, basically we're just trying to add these together in two different ways.

STUDENT: We wasted $200...

STUDENT: And $93.

STUDENT: So far but we only have $7 left but none of the toys equals $7. So and the paper said that we can get how... we're supposed to... we can get close to the number or we can get at the number.

STUDENT: But we only have $7 left and no toy equals seven so we're going to stop and not take any away.

STUDENT: Because and now we're almost finished so all we have to do is find two ways to draw it out. So, we're doing this way, we're doing all this and then she's writing on that.

KATY HOLMES: I would start with one number at a time subtracting it from 300, okay? I would not try and go to subtract three numbers from 300.

STUDENT: So one of the tenths have to be gone from. So there. Now I have to take away four. One, two, three, four. There. So, we have...

KATY HOLMES: So, I want place value.

STUDENT: So now 96 left. No don't erase the truck.

STUDENT: I'm not erasing it.

STUDENT: No, don't erase the truck.

STUDENT: No.

STUDENT: Don't erase the truck Aaron.

STUDENT: I'm gonna take some out.

STUDENT: We're not gonna go, we're not gonna go over. [Inaudible]

STUDENT: Aaron, no, leave the truck there until we find out the answer.

STUDENT: Okay. That's what I told but she said it's going to be too much to subtract.

STUDENT: No, just put the truck back and if it's over, we're going to erase the truck, okay?

STUDENT: So, we're doing plus?

STUDENT: No. No, Aaron.

STUDENT: I figured it out, but I was wrong because...

KATY HOLMES: Oh.

STUDENT: Because I wasn't doing it correctly.

KATY HOLMES: What did you figure out that was wrong?

STUDENT: Because I have this, I thought it was like three, then I had the seven. But then I thought the six equaled the 17 then I added the nine, then. But then I figured out it was three, seven, then it was 13, then 13 plus nine equals 22. Then one, 23.

KATY HOLMES: Awesome job. So that's why it's important for us to.

STUDENT: To do it again.

KATY HOLMES: To do it again, to check our work. Nice job. I'm proud of you. All right so now, I want you to figure out, go on the back and I want you to figure out how much money you have left over.

STUDENT: Okay.

KATY HOLMES: See if you can buy anything else.

STUDENT: Two, nine. 239 minus what?

KATY HOLMES: Well, you tell me.

STUDENT: Minus this.

KATY HOLMES: No, what's your grand total you have? How much money do you have?

STUDENT: My total is 239.

KATY HOLMES: How much money did I give you though?

STUDENT: 300 minus 239. Three, minus one, two, three.

KATY HOLMES: Are you sharing with Sebastian?

STUDENT: We got $64, we got. No, that's how much we have left on here. Oh we're not going to buy anymore.

STUDENT: Can I use the eraser?

STUDENT: Tractor and the doll. So how much, tractor is, tractors are 22.

STUDENT: Wait, yeah, tractors are 22.

STUDENT: Plus, board game. No, plus doll. Seven, Eight. Equals 87.

STUDENT: 87 so...

STUDENT: And, and, 87 plus one... plus two.

KATY HOLMES: Okay, so how much do you have left over?

STUDENT: Um, 100.

STUDENT: No, we have seven.

KATY HOLMES: What was your grand total?

STUDENT: Um, 247.

KATY HOLMES: Okay, how much money did you have?

STUDENT: 300.

KATY HOLMES: Okay.

STUDENT: Oh wait, I know. 200, um, 60, um, 246 minus 300.

STUDENT: We need a different way to do this.

KATY HOLMES: So, what does she need to do then?

STUDENT: Regroup.

STUDENT: Wait. Oh. We can't do that.

KATY HOLMES: No, what about her equation?

STUDENT: We have to do it the other way around, we have to redo it the other way around.

KATY HOLMES: Why?

STUDENT: Cause if you take like 246 plus...

STUDENT: You always have to do...

STUDENT: 300, you can't do that, because you just have, cause you, you just wouldn't have enough.

KATY HOLMES: You wouldn't have enough, very good.

STUDENT: And you also always have to start with the bigger number if you're doing a subtraction.

KATY HOLMES: There you go. You got it, keep going.

KATY HOLMES: Two more minutes and then we're going to come back together. All right?

STUDENT: I had to restart all of that.

KATY HOLMES: Why?

STUDENT: Because I didn't have enough room to take this... this... some of these ones all the way over these.

KATY HOLMES: Okay, there's also the back if you want.

STUDENT: Oh.

KATY HOLMES: Okay? And this paper. And there's notebook paper. You get all the paper right now.

STUDENT: Do not need these.

KATY HOLMES: Can you get me sho... can you get me 300 in place by blocks?

STUDENT: 300? Got it.

KATY HOLMES: Okay, so, let's look at our equation here. If you have 300, which place are we going to start with?

STUDENT: The hundreds place, so take away two, you have 100.

STUDENT: You can't take four away from zero, and you can't take six away from...

KATY HOLMES: Oh, so what do we need to do?

STUDENT: Regroup.

KATY HOLMES: So, use these to help you, that's why they're here. Okay? Use them to help you. So you're going to need to get into this box, okay.

STUDENT: Instead of going on top of it.

KATY HOLMES: So, instead of going on top of it (laughs).

STUDENT: (laughs)

STUDENT: Okay, so we get all the tens out.

STUDENT: And all the hundreds, well, not all the hundreds, there's only a couple hundreds. Like two hundreds.

STUDENT: Nailed it (laughs).

STUDENT: Now we also have, now we have to, um, so we got this...

STUDENT: So, three minus two.

STUDENT: Three minus two. We have to regroup, we have to regroup because you can't do this.

STUDENT: You have one in there, you have one in your hand. So, three, two.

STUDENT: We can't do that.

STUDENT: Yeah, you can. You can take away three from two.

STUDENT: But you can't do zero or you can't do three minus two. So, we have to regroup.

STUDENT: Or you can do zero plus zero is zero.

STUDENT: That's not the question. Okay.

STUDENT: So, change this to a two.

STUDENT: So, what we're going to do is cross this out, turn it to a two and put a three...

STUDENT: And put a ten right there.

STUDENT: Wait.

STUDENT: Cause, we're, we're borrowing.

STUDENT: No, that's not right. That's wrong. We have to do the, um, two instead of three. Not the three, the two. And then turn this into a one.

STUDENT: One.

STUDENT: And then we're gonna do this.

STUDENT: So, three, take away one.

STUDENT: And then what we're going to do here is we're going to turn, wait no wait. That's wrong. That's also wrong. Cause we need to do the three instead. So we, we have to take that away.

KATY HOLMES: Yes, ma'am. Thank you.

STUDENT: How many 100 is 25 going in?

KATY HOLMES: Say that one more time.

STUDENT: How much—how much [inaudible].

KATY HOLMES: On adding. This is what he's doing right now. So you can be his backstop, add these up.

INSTRUCTOR 2: So when you came up with 25, 10, what did you do to get that?

STUDENT: Um, this?

INSTRUCTOR 2: Yeah.

STUDENT: I, I add, I added all the tens.

INSTRUCTOR 2: Oh, so you got 25, so now you're going back now that you know that, that's 250, you're going to go back and do all the ones.

STUDENT: I counted already all the ones.

INSTRUCTOR 2: How many ones did you have?

STUDENT: It was 28.

INSTRUCTOR 2: 28? All right. Now what are you going to do to find out what your total is?

STUDENT: I, I have to put the [inaudible] here so I'm gonna give, I'm gonna to give us the [inaudible].

KATY HOLMES: Thanks, London.

STUDENT: 278.

INSTRUCTOR 2: How did you get that?

STUDENT: Because, um, when—if I got 28 and then if I, then if it was 250, the eight would be in the ones and—and two plus five is seven, that will keep with the 200.

INSTRUCTOR 2: Nice job, that's a good way to do that mentally.

KATY HOLMES: Nice job. Now does is—does this match, that you would have 24 leftover like you found out over here? How many more do you need to get to 300?

STUDENT: 24. It would be 24 still.

INSTRUCTOR 2: Subtract that from 300 to be sure.

STUDENT: I went to the back and did that [inaudible].

KATY HOLMES: So if you have 300 here, if you have 300 here, which place value should we start with that, that makes it the most efficient?

STUDENT: The ones.

KATY HOLMES: The ones place. So in this number 300, how many ones do you have?

STUDENT: Zero.

KATY HOLMES: Zero, so what could we do?

STUDENT: We could get one of the hun, hundreds and we can put it to the tens [inaudible].

KATY HOLMES: All right. So show me.

STUDENT: So we get one of the 100, you put it into the tens and we split it to ten ones, and then, um.

KATY HOLMES: So show me. How would I take this 100 and make it into tenths?

STUDENT: So if I put these on top and then I just took one I put into the—to the tenths and I—and I put it on a—took it apart [inaudible] ten ones. And then I put—and then I took away eight and then I will have eight under the ones place.

INSTRUCTOR 2: All right. Let's try this a different way. Here's your 300, right? Take 200 away. No, on here, right here, take 200 away.

STUDENT: Take 200 away.

INSTRUCTOR 2: So they're gone. Look at what you have left, right? Now, how much more do you still need to take away?

STUDENT: About 78.

INSTRUCTOR 2: So I can't do that here, right? So what do I need?

STUDENT: The tenths.

INSTRUCTOR 2: All right, so this is gone.

STUDENT: We have 1, 2, 3, 4, 5, 6, 7.

INSTRUCTOR 2: Okay, So these are now gone. How much more do I still need to take away?

STUDENT: Eight.

INSTRUCTOR 2: Okay, so what do I need to do to ma—do that?

STUDENT: Get, um—get eight ones.

INSTRUCTOR 2: Right, let's do it. You need to get ten ones so you can take eight away, right?

STUDENT: Oh, I know the answer to it.

INSTRUCTOR 2: All right, so give me one of these, right? You've got two tenths, three tenths, you still have the eight away.

STUDENT: 1, 2, 3, 4, 5, 6, 7, 8.

INSTRUCTOR 2: Okay. These are gone. How much do you have left?

STUDENT: Twenty-two.

INSTRUCTOR 2: So you over here, you said 24. Over here you've got 22. I think this is probably more accurate, so maybe we need to double check this one, because you're off by two, okay?

KATY HOLMES: Go ahead and put your place value blocks back into their containers please. [inaudible]. All right, and then I want you to take your papers and come sit next to your partner on the carpet with them.

STUDENT: [inaudible] What did you buy?

KATY HOLMES: That's what we're learning about right now. Order for—

KATY HOLMES: All right, so I'm going to call some groups up here, okay, to explain the strategies they used in solving their equations, okay? So the first one I want is Abbey and Kamille to please come up here. What is all of this up here?

STUDENT: So first we wrote down what we got. So then we got one board game and one dog.

STUDENT: And then we got two duckies.

STUDENT: So then we got our answer so then we got that answer and added one jump rope, and then that answer with one dress and that's how we did it.

KATY HOLMES: So what I—thank you, girls. What I noticed that they were doing is that when they were solving, they started with an equation, like I think they started with this one, this 45 plus 65, and they got their answer of 110. Then they kept taking their sum and adding it on to the net. And they kept going with adding their sums on. Adding the—adding their—what they were purchasing onto that original sum to get their answer.

STUDENT: Oh [inaudible] did that.

KATY HOLMES: Yeah.

STUDENT: But what [inaudible] then?

KATY HOLMES: Well, so down here then they were kind of try—they were trying to explain it in another way of how they got it.

STUDENT: Well that's how we all did it.

KATY HOLMES: What? Now girls, how much money did you end up spending?

STUDENTS: Two hundred and ninety-one dollars.

KATY HOLMES: Two hundred and ninety-one dollars. This is something that is a great strategy to use to break apart those bigger equations into smaller ones. Break 'em up into smaller pieces. Naomi and Cameron, please. All right, Naomi and Cameron have the floor.

STUDENTS: Oh, tracker.

STUDENT: So we bought one rubber duckie, one airplane and a race car and a video game and a boat.

KATY HOLMES: And a boat.

STUDENT: And a boat. And then we did our equation. We did 6 plus 12 equals 79. 98 plus 96 equals 194. 194 plus 90—79 equals 203. And 263 plus 36 equals 299.

KATY HOLMES: So what total did they get to?

STUDENTS: Two hundred and ninety-nine.

KATY HOLMES: They got to $299. Naomi, also, with that strategy, she did what?

STUDENT: She used tens and ones.

STUDENT: Regrouped.

KATY HOLMES: Well, in this one, she broke her big equations into?

STUDENTS: Small ones.

KATY HOLMES: Into smaller ones. Cameron, what's, what's happening over here on this one? Let's keep it this way. What's happening over here on this one, Cameron?

STUDENT: She did it in tens.

KATY HOLMES: So y'all did it in—

STUDENT: Tens, for the next equation.

KATY HOLMES: So you built the tens and the ones, you built a model. Very nice job, excellent work. Nice job on that one. Last one I want to pinpoint is Miguel and Aaron's strategy.

STUDENT: Did we get to the second question?

STUDENT: Yeah, we did probably.

KATY HOLMES: All right. So Miguel and Aaron, can you explain in the first box, the explanation box, what was your strategy that—in that way?

STUDENT: So we started with 300, and then we subtracted all the numbers in them. Subtracted all the numbers one by one.

KATY HOLMES: So they used what strategy?

STUDENT: Taking away.

KATY HOLMES: They subtracted. They started with their 300 and they kept going down.

STUDENT: With what they bought.

KATY HOLMES: With what they bought. Kinda like you would do in a store. All right, and then explain to me what you did over here.

STUDENT: So over here we did the same thing, we just added.

KATY HOLMES: You added. And what did you find out when you checked your work?

STUDENT: So when we checked our work, uh, we thought it was 24 but it was actually 22.

KATY HOLMES: Very good. So they used that inverse operation of addition and subtraction to be able to check their work. Nice job boys. Very nice job. Give them a round of applause on that one. How much money did you spend? That's what, um, Mia wants to know.

STUDENT: Twenty-four.

STUDENT: Oh uh—

KATY HOLMES: No, what was your grand total you spent?

STUDENT: Two hundred, uh—

STUDENT: Seventy-eight?

STUDENT: Two hundred and eighty-eight. There's 288 plus we've got 22 left.

STUDENT: Two hundred and seventy-eight, 278.

KATY HOLMES: Two hundred and seventy-eight and then you ra—and then he subtra—he subtracted 300 from that and they learned they had $22 left. Now let me ask you this. They had $22 left. Is there something they could have bought and spent all $300?

STUDENT: Yes, a tractor.

STUDENTS: A tractor.

KATY HOLMES: They could have bought the tractor and you would have spent exactly $300.

STUDENT: That equals exactly $22.

KATY HOLMES: That's all right. Nice job with that. All right. So now—it's okay. I'm going to co— I'm going to take your papers. Nice problem-solving.

KATY HOLMES: We have time for one round of math centers, okay?

STUDENT: Yeah. Yeah too bad [inaudible].

STUDENTS: [background conversation].

KATY HOLMES: All right. So—

STUDENTS: [background conversation].

KATY HOLMES: All right so, we're going to start on round two today, okay? So group one, all right? Can you please sit down? Thank you. All right group one. So Mia, Sebastian, Cameron, Kamille. You guys are going to get on Istation math, okay? All right. Group two: Jackson, London, Aaron and Anthony, you guys are going to work with me and we're going to be looking at some word problems, okay? Hold on a second. Rayna, Naomi, Abbey, Juliana, Miguel, you guys are going to be on the carpet doing Race to 1,000. Will you pick that box that fell behind the [inaudible] please. All right. So go to your center please.

STUDENT: She was supposed to switch 'em around, but when she, um, but if she get's it wrong, I get the point, but if she gets it right, she gets the point. And the—and the one who wins the most points wins.

STUDENT: I'm gonna win this time.

STUDENT: Okay.

STUDENT: Nope, I'm gonna win.

STUDENT: I'm gonna win. I won last time.

STUDENT: You weren't in my group.

STUDENTS: [inaudible conversation].

STUDENT: Oh dude, I looked at the cards so I have to redo 'em.

STUDENT: Who's going first?

STUDENT: Me.

STUDENT: You can't look at the cards.

STUDENT: No, this—it was—

STUDENT: Why are you shuffling the cards like that?

STUDENT: Wanna be the second? That's how I shuffle. I don't do, which is what Max calls them.

STUDENT: Juliana is gonna be the first one.

STUDENT: I'm going second.

STUDENT: Aw.

STUDENT: Two, three. [laughs] Three eights in a raise! Ms. Holmes I got three eights in a row!

KATY HOLMES: Luck of the draw.

STUDENT: We all need one.

STUDENT: Six, five—

STUDENT: Why do we all need one?

STUDENT: Three. Well that's over—no that's not over. That is over 1,000. It is kind of over. Oh yeah it is over. [inaudible] over.

SPEAKER: Why did you move those cards the way you moved them?

STUDENT: No, those are the cards he put 'em out as.

SPEAKER: Right. Tell me about what you're doing. Why are you moving 'em like that?

STUDENT: So we—so we're supposed to get three cards. If we don't, if we don't agree the way that we want, we can move them around.

SPEAKER: So what are you trying to get to though?

STUDENT: You—you're trying to not—you're trying to get as close to a 1000.

SPEAKER: Without going over?

STUDENT: Uh-huh.

SPEAKER: Awesome. And so you knew to get rid of the eight in the te—hundreds place why?

STUDENT: Because if you put the eight in the, in the, in the five, it will just go over a 1000.

SPEAKER: Okay.

STUDENT: I agree with this one. Let's go, let's start. Can we start?

STUDENT: Okay, what's the equation?

STUDENTS: [inaudible conversation].

STUDENT: That's your cap.

STUDENT: Where's the eraser?

STUDENT: Eight hu—no it's not 800.

STUDENT: I, I, I, I am doing Istation math, and it's where you can destroy, uh, like villains of math, and there's like three of them. There's this guy who makes robots and, and this girl who mix match things, and this is a wizard who's making animals disappear and he needs to solve math problems to make—and he's gonna make it disappear and every time he gets one right, it's gonna start green, and then every time he gets it green, that part of the animal will come back.

STUDENT: I'm doing—it's making me do two numbers to see what it equals, and then I have to type the numbers in that I wanna do, and then I have to find out what it equals and then I write right there and then I press Okay.

KATY HOLMES: All right, so check with each other.

STUDENT: You're forgetting something.

STUDENT: We should have 3/10 left.

KATY HOLMES: There you go.

STUDENT: Yea.

STUDENT: So, wrap—

KATY HOLMES: All right, so what have you taken away so far?

STUDENT: ...a small gift.

STUDENT: Forty-eight.

KATY HOLMES: Okay, so you had 100 and you took what away?

STUDENT: You need to, need to take six [inaudible].

KATY HOLMES: You took seven—you took seven 10s away. All right, now what do you need to take away?

STUDENT: [inaudible].

KATY HOLMES: Six ones?

STUDENT: It's 96 minus 36 minus 41?

KATY HOLMES: Well, what could you do?

STUDENT: You could do this.

KATY HOLMES: What could you do, Aaron?

STUDENT: Take those off. Count back.

STUDENT: That's six. I can't, like, cut it or anything.

KATY HOLMES: Okay so, what could you do instead? Is there something you could do with these pieces in here?

STUDENT: You could turn in one of those for ten ones.

STUDENT: Uh [inaudible].

KATY HOLMES: Very good. So, try that.

STUDENT: Oh, you subtract again.

KATY HOLMES: Is that what you need to do? What is it asking you to figure out?

STUDENT: Maria had 96 inches of ribbon and she used 36 inches to wrap a small gift and 48 inches to wrap a large one.

KATY HOLMES: Okay, so what's the equa—what's the question asking you?

STUDENT: How much does she have left?

KATY HOLMES: So, she's got. So, this is where sometimes drawing a model helps it out, okay? If I draw a picture. So, she's got, how much ribbon?

STUDENT: Um, 96.

KATY HOLMES: She's got 96 what?

STUDENT: Inches.

KATY HOLMES: Inches. Okay, now—

STUDENT: She takes away 36 inches.

KATY HOLMES: So, she used 36 of it.

STUDENT: And 48.

KATY HOLMES: And she used 48.

STUDENT: Then that would equal all together, at the en—it would only have 12 inches left.

KATY HOLMES: How did you figure that out?

STUDENT: Because I, I s—I saw that I would have to subtract again, so I add—make this one a, a 16 because you can't—I added those two together and those would be 14.

KATY HOLMES: Okay so if you—So, let's first do this, let's add these two together.

STUDENT: That equals—

KATY HOLMES: How much ribbon has she used so far?

STUDENT: Okay, 36 plus 48. That is 7—

KATY HOLMES: Anthony, same for you. How much ribbon has she used so far?

STUDENT: Eight—That's 80.

STUDENT: So, 96, 36, 48—

Anthony: 70—

STUDENT: Eighty-four. So that—

KATY HOLMES: Can you show me with an equation?

STUDENT: 84 minus 96

STUDENT: Those are the three numbers.

STUDENT: Okay, okay. Okay so 94—

KATY HOLMES: So, Anthony, we drew this model, okay? She's us—She has 96 inches total. All right? She used 36 inches and then she's used 48 inches. I want to know how much does she have left.

STUDENT: Oh. So, I'm fixing to do addition because sometimes addition can help you.

KATY HOLMES: Exactly.

STUDENT: Okay, now we move on!

KATY HOLMES: So, you're adding the total number of inches she's used, very good. Keep going.

STUDENT: She used 84.

KATY HOLMES: Okay, but how much did she have?

STUDENT: Ninety-six.

KATY HOLMES: She had 96.

STUDENT: I did this. I did this, um, 36 plus 48 equals 84, then I subtracted 96 from 84.

KATY HOLMES: And you got what?

STUDENT: Twelve.

KATY HOLMES: So how many—

STUDENT: Inches.

KATY HOLMES: Twelve—very good. So, you figured out she has—she's used 84 inches.

STUDENT: Yes.

KATY HOLMES: How much did she start with?

STUDENT: Uh, 96.

KATY HOLMES: Ninety-six. So, what equation could you do now to figure out h—how much she has left?

STUDENT: Ninety-six—

KATY HOLMES: All right, I'm going to, I'm going to draw the same model that I did for them. Okay? Because this is a—this is one of those two-step problems.

STUDENT: It is?

KATY HOLMES: Yeah.

STUDENT: Oh, I wasn't reading them.

KATY HOLMES: Well, you—remem—What was my first reaction for you?

STUDENT: Jasmine has a jump rope—

KATY HOLMES: Okay, carefully. All right so, let's, let's talk about this. So, Maria has how many inches of ribbon?

STUDENT: Ninety-six.

KATY HOLMES: She's got 96 inches of ribbon.

STUDENT: Then she—then she used 36 inches to wrap a small gift.

KATY HOLMES: So, she used 36 inches.

STUDENT: And then, she used 48 inches to wrap a large gift.

KATY HOLMES: Ope—

STUDENT: (laughs) Is it hard to write like that?

KATY HOLMES: Yes. All right, so she used 36 and then she used 48.

STUDENT: So, 36—

KATY HOLMES: What are we trying to figure out?

STUDENT: ...Minus 48.

KATY HOLMES: What are we trying to figure out?

STUDENT: What—how much ribbon is left.

KATY HOLMES: So, we want to know how much is left over here.

STUDENT: So, if you were doing 36— 48—

STUDENT: This should be minus this minus that.

KATY HOLMES: Why would we subtract this minus this? What would that tell us?

STUDENT: Because you can take away 36 plus—from 48 because it'd just be— because you wouldn't have enough to do it.

KATY HOLMES: What would—if we took 48 minus 36, what would that tell us?

STUDENT: Got it. Now moving on to the last one.

STUDENT: You could do 96 minus 48.

KATY HOLMES: Okay, so what are you saying to do?

STUDENT: 96 minus 48.

KATY HOLMES: Okay, so that would tell us how much she had left there and then—

STUDENT: And then—

KATY HOLMES: Keep going.

STUDENT: ...you can do 96 and 36.

KATY HOLMES: Would we take 96 though?

STUDENT: You can take the answer for this one and this one and put it in that.

KATY HOLMES: Ooh, so try that.

STUDENT: Okay.

KATY HOLMES: Okay so, Aaron, why don't you first figure out how much ribbon did she use to wrap both gifts.

STUDENT: Um, that should be 96 plus 36.

KATY HOLMES: She's got 96 inches total. What did she use to wrap the gifts?

STUDENT: Ribbon.

KATY HOLMES: Okay, she used ribbon, but how much ribbon?

STUDENT: Um, 48—

KATY HOLMES: She used 48 and...

STUDENT: And 36.

KATY HOLMES: And 36, so let's circle those numbers. She used 48 and she used 36. So, how much—so figure out—What equation could you do to figure out how much ribbon she used to make those two gifts?

STUDENT: So, we should do 48 plus 36.

KATY HOLMES: There you go, try it.

STUDENT: Seven, six, five, four, three.

KATY HOLMES: Oh, check your math there. Check your math in your one's place.

STUDENT: 36 plus, 8, 9, 10, 11, 12—

KATY HOLMES: What's your equation in your one's place?

STUDENT: Oh.

KATY HOLMES: You don't have to erase the whole thing, but that's okay.

STUDENT: I just wanted to.

KATY HOLMES: Okay.

STUDENT: Oh, got it.

STUDENT: Okay, four, eight—Wait, you wouldn't be able to do it because 36 minus 84 you wouldn't be able to do.

STUDENT: Plus 84—

KATY HOLMES: Well, keep the same equation you had.

STUDENT: Eighty-four.

KATY HOLMES: Okay so she's used 84 inches. Okay, now, what other piece of information do we know from the equation?

STUDENT: Please don't tell me there's a back.

STUDENT: Uh, I keep writing incorrect.

KATY HOLMES: Look at our model here. What other information do we know?

STUDENT: That we can also do more subtraction.

KATY HOLMES: Okay, what would you subtract?

STUDENT: 96 minus 36.

KATY HOLMES: Well, what did we figure out over here? How much did she use?

STUDENT: Eighty-four.

KATY HOLMES: So, she used 84, this equals 84.

STUDENT: It's a plus, so 48. How much more does she need? So, I knew that 24 plus 48 is 72.

STUDENT: Eighty-four and...

KATY HOLMES: So, what equation could you do now to figure out how much you have left?

STUDENT: 84 minus 48.

KATY HOLMES: We've already used these numbers. These are gone.

STUDENT: So, 96 minus 84.

KATY HOLMES: Try it.

STUDENT: Ms. Holmes?

KATY HOLMES: All right, will you write your name at the top of there for me?

STUDENT: Okay. Can I write on the table?

KATY HOLMES: Yes.

KATY HOLMES: What surprised me during the lesson was definitely the variety of strategies that students use, whether it was starting with subtraction, and then checking it with addition or whether it was breaking it apart step by step and taking that answer and creating a new addition problem and going through it that way, or just using the place value blocks to help them add the multidigit numbers together. So my next steps would be definitely homing in more on the subtracting across zeros, maybe even teaching a smaller mini lesson, specifically on subtracting across zeros. I know that we've, we've done a lot with that, but maybe going back and specifically pinpointing that specific type of equation, whether it's whole group or small group. So there was one student who, he was struggling with, definitely the subtracting across zeros and when—he wanted to start in the hundreds place. And so when we specifically had him use the place value blocks, he was more able to conceptualize the numbers, taking those numbers away as opposed to just sticking with the algorithm. So some specific strategies I saw was one student definitely, he started with the 300 and then he was subtracting down, and then he used the inverse of addition to help him see that—if his subtraction equation was correct, and he actually had to go back and refix some of the calculations behind that. And then there was another group that they took it step by step, and they really pinpointed exactly what they were going to buy and took it equation by equation. Then there were other groups that they specifically just used the place value blocks to help them, and they actually drew their models of their place value. One of the things that I noticed that- is where the students were taking the giant list of all the things they wanted to purchase, and they were just creating this big, huge equation of number after number after number. So one thing that we might work on is how—a strategy of how do we take that big, huge equation and break it apart into smaller chunks to make it a more manageable math equation for them.