Adding within 1000 (Grade 2)

TEACHER: Let's see, Miss Carly, can you read our Knowledge for College Board Objective for today?

STUDENT: I can add two 3-digit numbers using the splitting strategy with base 10 blocks.

TEACHER: So today, we're going to be talking about the splitting strategy with 3-digit numbers. You guys have been working so hard on 2-digit numbers and your strategies for how to add 2-digit numbers. And today, we're going to move on and challenge ourselves, and add another digit to make it a 3-digit number.

So we know that splitting-- the strategy of splitting works for 2-digit numbers. I want you to make a prediction if you think it would work for a 3-digit number. Adding two 3-digit numbers together. I want you to make a prediction if you think that that would work. Think about it for a second.

Show of thumbs. Show me a thumbs up if you say it would work, thumbs down if you don't. Just whatever you think. OK, awesome. All right, hands down.

Who can tell me what splitting is? What's splitting? Salome.

STUDENT: Splitting is where you have two numbers and you split them into the different place values. And then you add them up and see what your answer.

TEACHER: Awesome. Would anybody like to repeat what Salome said, in their own words or similar words? Patty.

STUDENT: Splitting is an easy way to add numbers using place value.

TEACHER: Yes, using place value. So the key words I'm hearing is, splitting numbers up into their place value. Who can tell me what they mean by place value?

STUDENT: It's like the tens place and the one's place. It's like that.

TEACHER: OK. So it's just figuring out if it's tens or ones--

STUDENT: Or hundreds place or thousands place.

TEACHER: OK. Awesome. So I'm looking at the board here, at two 2-digit numbers. And I want to add them, and I want to use the splitting strategy. What math resource in our classroom, math manipulative that we have, what could we use to represent this number sentence?

STUDENT: We could use splitting.

TEACHER: Yes. So to show splitting, what resource can we use to actually show it on the board? Tristan?

STUDENT: Base 10 blocks.

TEACHER: We can use Base 10 blocks. Exactly. So I want you to turn your partner when I say go. And I want you to discuss how you could show this number sentence, 34 plus 23. How could you show that using base 10 blocks? Go.

[CHATTER]

Shh, shh. Eyes on me in 3, 2, 1. I saw some awesome conversations going on. I would like somebody to come up to the board. And I have base 10 blocks up here. And I want you to show me how you can represent that number using the base 10 blocks. Layla, why don't you come on up and show me?

STUDENT: So you could have 3 tens for thirty. And then 4 ones for 4. And for 23, you could use 2 tens and 3 ones. And then the 30 plus the 20 equals a 50. And then the 4 plus the 7 equals 57.

TEACHER: So you did 3 tens for the 30. You did for 4 ones for the 4. 2 tens for the 20, and 3 ones for the 3. And then you put them all together. Why did you put them all together?

STUDENT: Because when you put them together, you could make the whole number, like the answer.

TEACHER: OK. So our answer would be what?

STUDENT: 57.

TEACHER: 57. Let's give Layla a round of applause. Nice job, Layla. Does anybody agree or disagree with Layla? Looks like we have 100% agreeing with you, Layla. Nice job.

All right. So now I'm going to show you-- I'm going to put a different number sentence on the board.

I want you to look at it this equation right here. And I want you to tell me how these are different than the last problem I put on the board. Leany, what's different?

STUDENT: Because in this equation, there's a 3-digit number and a 2-digit number.

TEACHER: Awesome. Did anybody else notice that? I noticed that, too. Do you think we could use splitting to solve this equation?

STUDENT: Yes.

TEACHER: How would we do that? How would we do that? Devon, why don't you come up and help me out?

STUDENT: I'm kind of confused right now.

TEACHER: That's OK. I'll help you through it. So we had two 2-digit numbers up here, right? And now we have a 3-digit number and a 2-digit number. Do you think we could still use splinting, and slip them up into place value to solve this?

STUDENT: I'm not really sure.

TEACHER: OK. Can one of your classmates walk him through this?

STUDENT: Do you get how you put 1 and 26? 26, so I put 2 tens and 6 ones. Do you get that?

STUDENT: Yeah. I just don't-- wait. I thought we were doing the strategy.

TEACHER: We are.

STUDENT: No, no. I don't-- I don't mean like the base 10 blocks. I mean like, just like--

TEACHER: Are you meaning you're used to us writing it out like this?

STUDENT: Yeah, that's what I meant.

TEACHER: OK. So this-- these base 10 blocks are a resource that we can use to show that.

STUDENT: Oh. Right?

TEACHER: Because this-- what is this, Devon? Right here.

STUDENT: 100?

TEACHER: That's 100. So see how I'm showing this using base 10 blocks?

STUDENT: Uh-hm.

TEACHER: OK. So now, keep going.

STUDENT: And then, when you-- when you put them together, it's-- when you put the tens, and-- when you add the tens, it equals 90.

TEACHER: Devon, just a question, a clarifying question. Why are you putting the tens together? Why do you do that?

STUDENT: Because when you put them together, it's like-- you put them together because when you put them together and you count all of them together, then it gives you the answer.

TEACHER: OK. So would you add the ones to the tens? Or would you add the ones to the ones?

STUDENT: The ones to the ones.

TEACHER: And then what would you add? The tens to the--

STUDENT: To the tens.

TEACHER: OK. So go ahead and do that.

STUDENT: And it equals 198.

TEACHER: It equals 198. Do you guys agree? Look, I see some cheers for you, Devin. Thank you very much. Thank you, Cassie, for coming up and helping out.

Boys and girls, remember when we are splitting into face value, we have to make sure that we always are adding all the hundreds together, all the tens together, and all the ones together. Now in this case, we only have 1 hundred. So we're not adding it to anything. But does it just disappear?

STUDENT: No.

TEACHER: No. We just keep it there. And we add up all of our tens, and then all of our ones. Awesome.

Now, before we move on, when I say go, I want you to show me a thumbs up if you're feeling good about this and you're ready to move on. Or a thumbs down if you're still needing some more clarification. Go. Show me.

So Miss Sophia, what would you-- would you like to go over another example? Or can I answer any questions for you?

STUDENT: Well, can I use another example of this?

TEACHER: Sure. So we're going to-- we're going to do an example of splitting. And then we're also going to get a chance to work with base 10 blocks at our seats. And I'll make sure I come around, and we'll talk about-- we'll talk about it, OK?

All right. So let's do another example. We know that it works for a 2-digit number plus a 2-digit number. We know splitting works for a--

STUDENT: 3-digit number.

TEACHER: 3-digit number and a 2-digit number. What do you think the next step in our progression would be? What do you think our next step would be, Trijo?

STUDENT: 3-digit number and a 3-digit number.

TEACHER: Yes. 3-digit number and 3-digit number. So we have 235 plus 163. I want you guys to look at that for a second. And I want you to think about it, and how I could show this using base 10 blocks.

All right, Trijo, come on up and let's show us how we can use splitting to solve this.

STUDENT: So we get 2 hundreds in 235.

STUDENT: OK.

STUDENT: And 3 tens.

TEACHER: Can I ask you a question? How do you know to put 2-- How do you know that you have 2 hundreds and 3 tens? How do you know that?

STUDENT: Because it's 235. You have a 30 in the ten.

TEACHER: OK.

STUDENT: And then--

TEACHER: Can you explain to me what's going on right now? What you're going?

STUDENT: I have 163. I have 6 tens and 1 hundred. And then, 235 and 200, because it's 235. And 3 tens and 5 ones.

TEACHER: OK.

STUDENT: So I add the 1 hundred to the 2 hundred over here. That makes 3 hundred.

TEACHER: Do you want to use this to help you? They're kind of hard to move.

STUDENT: 3 hundred right here. From the 3 hundred. and then, I add 3 tens to the 6 tens and that makes 90. So we have 390. And then 5 plus 3 equals 8. And then, so we have 390.

STUDENT: How do know to put them all together?

STUDENT: Oh, I just put them all together.

STUDENT: But how do you know to do that?

TEACHER: That's a really great clarifying question, Cassie.

So Trijo, you know. Let's think about this. Because you do know, right? OK.

STUDENT: Yeah.

TEACHER: So you split them into place values. And Cassie wants to know why did you add them up? Why did you add them up? Oh.

STUDENT: Because it's easier to get-- to find the answer for me. And I just worked with my brain.

TEACHER: Does splitting work with 3-digit numbers?

STUDENT: Yes.

TEACHER: So Joshua, if I am splitting 235, what would my value of my 2 be?

STUDENT: 200.

TEACHER: 200. Very good. And Sara, if I'm splitting the number 235, what would my value of the 3 be?

STUDENT: 30.

TEACHER: 30. Miss Sophia, what would my value of my 5 be?

STUDENT: 5?

TEACHER: Good. 5. Are you with me so far? All right, Gabby, what would my value of the 1 be in 163?

STUDENT: 100.

TEACHER: 100. Very good. And let's see, who have I not called on? Gavin. What would my value be for the 6?

STUDENT: 60.

TEACHER: 60. Josiah, what about the last one?

STUDENT: 3

TEACHER: 3. Very good. So we can use base 10 blocks to show these numbers, like we've been doing in this lesson so far. We can show the 200, the 30, and the 5. But when we do number talks

and number strings, we can write the number below. Just like this. And as we know-- actually, I want to make sure you understand this before I move on.

When I start stringing these numbers together to add them, what place values do I have to add to each other? What place values do I have to add to each other? Carly?

STUDENT: You draw the string. So, say I'm doing the 3 from 163.

TEACHER: OK.

STUDENT: You have to do it to the other ones.

TEACHER: The other ones. Why?

STUDENT: Because if you added it to another place, then you would get the wrong answer.

TEACHER: Yeah. So we have to make sure that when we're adding, we add up the ones together, the tens together, and the--

STUDENT: Hundreds.

TEACHER: Hundreds together. So warriors, want is 5 plus 3?

STUDENT: 8.

TEACHER: What is 60 plus 30?

STUDENT: 90.

TEACHER: And what is 100 plus 200?

STUDENT: 300.

TEACHER: What's 300 plus 90?

STUDENT: 390.

TEACHER: And what 390 plus 8?

STUDENT: 398.

STUDENT: You forgot the plus sign.

TEACHER: Now that we have done a couple together as a group, you're going to try a couple at your own seat with your own partner. Some of you guys have a group of three. You guys work together. And you guys are to be given a mat, a work mat. And your work mat looks like this.

So your work mat is at your desk, and it's blank. And you base 10 blocks at your desk, as well.

Gabby, I need your eyes on me, please. Thank you.

Your work mat is going to end up looking like this. Ah, look at that.

STUDENT: Oh, wow.

TEACHER: So, let's go through this really quickly, before we move on to you guys working with your partners. So, if my question this 132 plus 345-- your equations going to be on the Elmo. I'm going to have it projected up there. So you know that-- so you know your number sentence is going to be up there.

So what I'm going to do is, on my work mat, I'm going to write my first number, 132. And then I'm going to-- Brianna, why don't you come and have a right here, sweetheart, so you can see. I'm going to stand over here.

And then I'm going to have my second number, 345, is going to be right here. And I'm going to break it up into place value. I have my hundreds, tens, and ones. How many hundreds do I have here?

So looking at our board, our equation is 284 plus 315. Build it with your partner.

[CHATTER]

STUDENT: You do the tens and ones, I'll do the hundreds.

[CHATTER]

TEACHER: Make sure you have your Numbers in here so that you know what you're building.

[CHATTER]

STUDENT: Let's start off with 284. So you have 8 tens.

[CHATTER]

TEACHER: How are you doing over here, Miss Sophia? Building away?

[CHATTER]

Awesome. And why did you pick 5 out?

[CHATTER]

You said there's five ones, so you're going to put 5 there?

STUDENT: Yeah.

TEACHER: Awesome. Now what do you do?

STUDENT: Well then, now we have to solve the equation.

TEACHER: Solve the equation. OK. Can you show me how?

[CHATTER]

STUDENT: So this is 5, so I put 5 here.

TEACHER: Do agree with that? OK.

[INTERPOSING VOICES]

[CHATTER]

I want you to come explain it to me in just a second. I'm going to finish up with Sophia and I'll be right there. OK.

[INTERPOSING VOICES]

Good job. So what do you guys do next, after you solve it?

STUDENT: Then you draw the number.

TEACHER: Show me your number strings. Show it to me.

Your board looks nice.

[CHATTER]

How are you guys doing over here?

[CHATTER]

You're doing your draws? OK. Warriors ready to rock?

STUDENT: Ready to roll.

TEACHER: I have to say, you are rocking this lesson. By the time I get to zero, I need you ready to go. Are you ready?

STUDENT: Yes.

TEACHER: Are you sure?

STUDENT: Yes.

STUDENT: No.

TEACHER: No?

[LAUGHTER]

[CHATTER]

Let's build it. Nice job, Sophia.

[CHATTER]

That tells you that you have 6 tens?

STUDENT: Yeah.

TEACHER: OK.

[CHATTER]

What? What did you notice?

STUDENT: It's all the same number.

TEACHER: Have a seat.

They're all the same number. Exactly.

[CHATTER]

286? OK, let's look at it. So you guys got two different answers. So let's look. Let's stop with our drawing, and let's go back to our board. What number are you adding here? What's the first number? It's OK. What goes here?

[CHATTER]

OK, so go ahead and write that.

[CHATTER]

OK. So, great job. So, how many hundreds do we have here?

STUDENT: 6.

TEACHER: OK. How many tens?

STUDENT: 7.

TEACHER: How many ones?

STUDENT: 8.

TEACHER: So is that correct? OK. Let's look here. How many hundreds? How many tens? How many ones?

[CHATTER]

Do we have one too many? OK, let's put that away. Now, how many hundreds do you have total?

[CHATTER]

Write it down. No, I don't want you worried about that right now. I want you to focus here. Write down your hundreds. Uh-huh. How many tens do we have?

STUDENT: 886.

TEACHER: Count these. Count with me. 1, 2, 3, 4, 5, 6, 7, 8. So what goes here?

STUDENT: 8.

TEACHER: So what's your answer? You got it. Well, you had the wrong amount over here originally. That's maybe what got you confused. So now go ahead and try that one more time, now that you know your right place values.

All right. I didn't do that on purpose. It just co-incidentally happened.

STUDENT: All the place values are the same.

TEACHER: All right. Before I move on to our next example, did anybody have any ah-ha moments?

STUDENT: What do you mean, ah-ha?

TEACHER: Any ah-ha moments. Any moments where something clicked for you that hasn't clicked before? Trino?

STUDENT: I didn't know that it was-- I didn't know that it was 888.

TEACHER: You didn't know it was 888? What did you think it was?

STUDENT: I thought it was 800-- 886.

TEACHER: And how did you figure that out? How did you solve that? I mean, how did you overcome that, and learn from that?

STUDENT: I added-- I added all the hundreds and that equals 800. And then I added all the tens, and that equals 80. And I added all the fives, and that equals 8. And then got 888.

TEACHER: OK. Awesome. Nice job, Trino.

All right. We have time for one more example.

STUDENT: Yeah.

TEACHER: Our last problem is-- you ready? Drum roll, please?

[DRUMMING SOUNDS]

[CHATTER]

335 and 422. You guys already have that written down. You guys are quick.

[CHATTER]

I think you're doing an Amazing job. That's a great example to show. Would you mind doing that in just a few minutes? Yeah? OK, great.

[CHATTER]

All right, Warriors. Ready to rock?

STUDENT: Ready to roll.

TEACHER: You guys are getting a lot quicker at this. Nice job.

I need for you to cap your pens. That's all I want you to do. Don't worry about erasing right now. Just cap your pens. And I need you to track the speaker up front.

I would like Gavin to come up. Gavin's been working really hard. We've all been working really hard. And his numbers string looks really nice. And I would like him to kind of come up and share his thinking, and then we're going to wrap up.

You can have the Elmo set up. So you can just put it down on the Elmo.

STUDENT: I split 422 to 400, 20, and 2. And 336 into-- I split it up into 300, and 30, and 6. 400 plus 300 equals 700. It's just the same thing as 4 plus 7. And you just add two more zeros to it, and it'll make 400.

TEACHER: Can you point to the numbers as you're explaining it to us?

STUDENT: So, 400 plus 300 equals 700. 200 plus 300 equals 50. OK, 20 plus 30 equals 50.

TEACHER: OK.

STUDENT: 2 plus 6 equals 8. And 700 plus 50 equals 750. 750 plus 8 equals 758.

[APPLAUSE]

TEACHER: Awesome job.

I want to wrap up the lesson by talking about, again, what we learned today. And can someone tell me what we learned? What was our objective? What was our objective? Sophia?

STUDENT: [INAUDIBLE]

TEACHER: For math. What else about using base 10 blocks? Who can tell me? Josiah?

STUDENT: Learning how to just put in the 3-digit numbers.

TEACHER: Yes. Using the splitting strategy to add two 3-digit numbers. Do you feel you met the objective?

[MURMURING]

Yeah. Do you guys feel that you learned how to add 3-digit numbers with splitting? Yeah? So, I want you to turn to your talk partner. If you're in your group of three, tell them one new thing you learned today. Go.

[CHATTER]

[SHUSHING]

I heard things like I've never used numbers this way. I heard things like I learned what a 3-digit number was. I heard somebody say that they learned how to use base 10 blocks the appropriate way. A lot of new learning moments we had in here.

So again, hands free and eyes up front. I know there's a lot of really fun things in front of you. But I want you to really look carefully at this. You guys are going to be taking an exit ticket assessment.

Your exit ticket. You're going to solve the problem, 137 plus 651. There's a spot for to use base 10 blocks. How can you use splitting to solve this equation?

I want you to use your words. Explain to me how splitting works, and how it works for this equation, with your answer up top. Are there any questions? Carly?

[AUDIO OUT]