

Building Two-Digit Numbers with Bundles and Sticks

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In this video we're going to talk about using bundles and sticks, a groupable base 10 material, as a way of supporting students in developing strong foundations for addition-subtraction strategies. Eventually, they're going to translate these ideas to mental strategies, but, by first seeing them play out with the materials, they're going to be working with understanding of why those strategies work. So this is a groupable material, and the key hallmark of that is students are responsible for building those groups. For example, they might count out. We see here, count out those sticks and they'd make sure there's 10 there. And they could use a rubber band. We really like hair ties. They're kind of the right level of stretchiness and won't catch on their fingers the same way. So using those little hair bands to put that into a bundle of 10. That act really shifts this from being a loose collection of 10 items to this chunk item of 10 that they can work with. And even the way it just sort of stumbles and jumbles in on itself makes it less likely students will count these by ones, but will really think of this as a chunk. Students can use these to build double-digit numbers. For example, we might build, let's say, 36. And so they would think about having three tens, and they would pull out those six ones and see that 36. It's fine if they represent it like that or like that. This is not about the position. It's about the quantity, the fact that there are 36 sticks in this pile, but they're organized into those three tens and six loose individual items. Students get more and more comfortable with just being able to build and read numbers. For example, we should be able to just put in front of them a certain number of sticks and they can efficiently and quickly establish the quantity, maybe counting 10, 20, 30, 40, 43, 46, 47, 48, right? They can work with those quantities. We're going to start

doing activities like this. We're going to start with that 48 here, and just ask them what happens if we add another 10. And so we want them to be thinking about how 48 and 10 more would be 58. Initially students may need to recount that. You might hear some 10, 20, 30, 40, 50, and then recounting, but we want them to get to the point where they can just immediately jump from that 48 to 58, and another 10, 68. Maybe we'll put out a 1, and they can think about that 68, 69, put out a 10, 69 to 79, put out a stick, 79 to 80. Maybe we pause there and put a rubber band around that, so they can see how that 70 and 10 loose ones is also the same as having eight groups of 10. We're at 80. Maybe I put out another one. We're at 81. 91. So maybe we start back at that 91, and what I do forward, I do backwards. So 91, take away a bundle, 81, take away a bundle, 71, 61, 60, 50, and so on. Maybe at 50, how do I take away a one? I have to think about being able to unbundle. So to take away from that 50, 49, 48, and so on. Students need to be comfortable with adding or subtracting one or 10 from any double-digit number. That's going to be the foundation for those strategies we want them to use when adding a number like 23 or 35. They simply can break those numbers up into those tens and ones component, working with each efficiently.