Lesson Plan #1, Kate Waldron

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| Standard |
| 2.NBT.7 Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.  |
| Objective |
| By the end of the lesson, students will learn to add two three-digit numbers using the splitting strategy with base-10 blocks. Student Language: I can add two three-digit numbers using the splitting strategy with base-10 blocks.  |
| Background Knowledge |
| * We have been working with different number talks strategies for addition (from Catherine Fosnot’s *Young Mathematicians at Work*).
* Students will need to be able to add two two-digit numbers fluently within 100 using the splitting strategy.
* Since this is an introductory lesson to three-digit splitting, the numbers in the math sentences will not require regrouping.
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| Possible Misconceptions |
| * I anticipate that some students might confuse splitting with other addition strategies we have used in the past.
* Students may add the wrong place value (ones plus tens, hundreds plus tens, etc)
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| DOK Levels/Activities |
| Level 2 Understand: Use mathematical models/diagrams (base-ten blocks & number strings/number talks) to represent or explain mathematical concepts.Level 4 Evaluate: apply understanding in a novel way, provide argument or justification for the application. The goal is for students to understand why splitting works and apply what they learn to everyday math situations. |
| Materials |
| * Base-ten blocks
* Mini white-boards, white board marker, eraser
* Work mat
* Exit ticket worksheet/assessment
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| Engage |
| Today we will learn how to add two three-digit numbers using the splitting strategy. We will also learn how and why splitting works.We are familiar with how to use splitting for two two-digit numbers.* Do you think splitting would work for two three-digit numbers? Why or why not?

We are going to apply our prior knowledge from splitting two-digit numbers, challenge ourselves, and try it with larger numbers. * Who’s ready?
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| Examine |
| T “Splitting is when we break a number up into its place value parts. Let’s review an example.”T will show the addition sentence 34 + 23 on the board. S will answer: What math resource could I use to represent this math equation? (Base-ten blocks)S will answer: Using base-ten blocks, how can I represent this number sentence? (turn and discuss with your elbow partner – students will then share out their ideas to the teacher)S will answer: Can someone walk me through how to use splitting to add these two numbers?S will show 34 + 23 with base-ten blocks on the board and share out their thinking. * Great, please show me a thumbs up if you feel you understand this concept or a thumbs down if you are feeling confused. (T will address any current misconceptions)

T will show 126 + 72 on the board.* How are these numbers different than the last set of numbers?
* Can we apply the same splitting concept with a two and three-digit number?

T “We can apply the same concept with two three-digit numbers. Let me show you.”Will show the addition sentence 235 + 163 on the board.S will move base-ten blocks below the equation to represent the number while explaining that 235 is broken up two hundreds, three tens, and five ones. Then, T will repeat explanation for 163.“Now that I broke up the numbers by splitting them into place value, we will combine the hundreds together, the tens together, and the ones together.” S will show this.* Can someone explain to me why I am putting blocks together instead of taking them apart?
* Why does splitting into place value work for addition?

T will show that there are now three hundreds, nine tens, and eight ones. T “I will now add up the base-ten blocks together to find my sum, which is 398. So, by splitting up the place values and adding them together, I got my sum. Let’s do one more example.T & S will repeat previous steps for 215 + 461= 676.* Show me a thumbs up if you feel you are ready to try this strategy on your own with a partner or a thumbs down if you are still confused about something. (T will address any current misconceptions.)

T “Sometimes when we are out and about in the real world we have to do math in our heads. Number strings (from number talks) help us do this. Can we use this splitting strategy with three-digit numbers? Who wants to help me show this?”S will come up and show number string. |
| Explore |
| T “Okay mathematicians, let’s try a few examples together.”In partners, S will use base-ten blocks at their desks to build 284 + 315 on a work mat.* Do you think base-ten blocks help you with the splitting strategy? Does it work for your brain? Why or why not?
* (check-in) When could you use this strategy in real life? (number strings/number talks, adding numbers)

Once students solve the problem, T “Now, draw a number string on your white board using the splitting strategy to show your thinking.”In partners, S will repeat the above process for:623 + 265336 + 422512 + 435 |
| Explain |
| T will call on a few students to come to the board and show/explain their thinking.S will ask the class “Does anyone agree or disagree with me on how I solved or explained my problem.” \*\*\*depending on how students answer, we will move on to another student sharing or students will have a dialogue about their disagreement\*\*\* |
| Extend/Closing |
| Today we learned how to add two three-digit numbers with base-ten blocks and show our thinking using number strings. Please turn to your partner and tell them one thing new you learned today! |
| Evidence of Learning/Assessment |
| Students will complete a worksheet (exit ticket) where they will draw the base-ten blocks to show their thinking. Students will also draw out the number strings strategy on the worksheet and explain their thinking process in words.Students will apply their knowledge from this lesson in number talks later in the day. Then T will determine if a follow up lesson is necessary. |

34 + 23

126 + 72

235 + 163

215 + 461

Build **284 + 315** with base-ten blocks:

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| --- | --- | --- | --- |
|  | Hundreds | Tens | Ones |
|  284 |  |  |  |
|  315 |  |  |  |
|   = |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
|  | Hundreds | Tens | Ones |
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Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Exit Ticket Assessment

Directions: Using base-ten blocks, solve 137 + 651 using the splitting strategy. Draw the base-ten blocks to show your thinking. Then, show the splitting strategy as a number string. Lastly, explain your thinking in words.

137 + 651 = \_\_\_\_\_\_\_\_\_\_

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| Base-Ten Blocks: |

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| Number String: |

Explain your thinking:

How can you use splitting to solve this equation?

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