

# Next Steps and Instructional Moves

The intended purpose of this document is to provide teachers with a tool to determine student understanding and suggest instructional moves that may help guide a student forward in their learning of a concept or standard. This guide is not an exhaustive list of strategies.

## Third Grade: Cluster 3 Number and Operations in Base Ten Addition and Subtraction within 1,000

**NC.3.NBT.2** Add & Subtract whole numbers up to & including 1,000.

- Use estimation strategies to assess reasonableness of answers.
- Model & explain how the relationship between addition & subtraction can be applied to solve addition & subtraction problems.
- Use expanded form to decompose numbers & then find sums & differences.

**NC.3.OA.8** Solve two-step word problems involving addition, subtraction, & multiplication, representing problems using equations with a symbol for the unknown number.

**Not Yet**

**Students that are consistently scoring “Not Yet” on addition and subtraction tasks could have a variety of errors. Work with the standard algorithm is not expected in Grade 3. Students that are consistently scoring “Not Yet” do not have effective strategies for finding a sum or a difference. They may not be able to determine which operation is best suited to solve a specific task or step(s) in a multi-step problem. Students also may not be able to determine if their answers are reasonable and will need instruction in estimation strategies. An emphasis on place value understanding is important.**

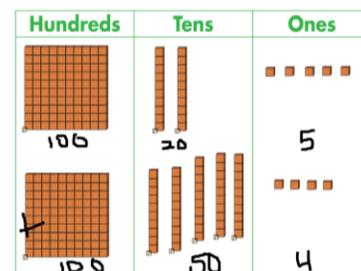
### Next Steps:

**For students having trouble identifying whether to add or subtract:**

- Avoid keyword strategies
  - Present word problems without numbers & ask students to verbalize or write about the action(s) taking place
  - Encourage students to “put themselves” in the story--visualize or act out what is taking place.
  - Do a quick write or sketch of the action in the problem.
  - Provide a variety of different problem types for students to distinguish between: add to, take from, put together/take apart, and compare
- Start with smaller numbers (within 20) and use counters or cubes to represent the word problem.
- For subtraction problems have conversations with students that they could subtract, or they could add up from the number they are subtracting until they reach the number they are subtracting from. Ex:  $45 - 27 = \underline{\quad}$  could also be written as  $27 + \underline{\quad} = 45$ .

**For students having difficulty with expanded form:**

- Pose tasks where students must build 3-digit numbers with base ten blocks.
  - Can you build 243? Where is the 200? Where is the 40? Where is the 3?
- Provide students with base ten blocks to build the numbers and carry out the processes of addition or subtraction.
- Pose tasks and have students use a place value chart with base ten blocks to support students work. The pictures show  $125 + 154 = \underline{\quad}$  in a place value chart.
- Students may use [arrow cards](#) to build numbers and visualize the value of each digit.



# Next Steps and Instructional Moves

## Not Yet (continued)

- After spending time with base ten blocks, pose tasks and have students draw pictures of base ten blocks to represent problems. Also have them write out the numbers in the task in expanded form.
- For students having difficulty using an open number line to add or subtract:**
- Encourage students to use the open number line along with base-ten blocks and/or written notation of expanded form when solving tasks.
    - Pose questions to help students as they reason about the connection between the base-ten blocks and the pictorial representation of addition on the number line.
  - For addition: pose tasks and discuss strategies of starting with one number and adding up in parts by making jumps that land on friendly numbers (multiples of 10 or 100) and making jumps that are multiples of 10). Ex:  $237 + 148 = \underline{\quad}$  could be shown as starting at 238 and adding 100, then 40, then 8 or a different variation of 148 broken into smaller parts.
  - For subtraction: pose tasks and discuss strategies of starting with the number being subtracted and adding up in parts to reach the number that you are subtracting from. Ex:  $237 - 148 = \underline{\quad}$  would be shown on a number line starting at 148 and adding in parts until they reach 237.
- For students having difficulty determining whether a problem is one-step or two-step:**
- Have students retell tasks in their own words. Identify the actions in the problem and whether there are 1 or 2 steps that need to be done in order to answer the question.
  - Use numberless word problems and have students retell & discuss the action(s)
    - Encourage students to use language first, next, then, last as they retell
    - Students should explain what math operation they think of as they discuss the problem
    - Add back in the numbers (single digits if necessary) & have students write an equation(s) to match the problem

# Next Steps and Instructional Moves

## Progressing

Students that are consistently scoring “Progressing” will have an appropriate operation for a word problem. For subtraction problems that could include subtracting or rewriting a subtraction problem as an addition problem (e.g.,  $237 - 189 = \_$  as  $189 + \_ = 237$ ). Students also demonstrate how to use a strategy for addition and subtraction. They may not be 100% efficient with this method and are not able to check their work with another strategy or by using the inverse operation. In addition, students may not be able to judge the reasonableness of their answers and may require additional work with estimation. Furthermore, students may not always recognize that there is more than one step required to solve a problem.

### Next Steps:

**For students with errors related to reorganizing (or regrouping) hundreds, tens, and ones while adding:**

- Encourage students to use expanded algorithm to solve by adding the hundreds, then adding the tens, then adding the ones, and then combining the hundreds, tens, and ones to get the final answer.
- Encourage students to first add the ones, the tens, the hundreds, and lastly combining them all and then combine the hundreds, tens, and ones to get the final answer.

$274 + 362 = 636$

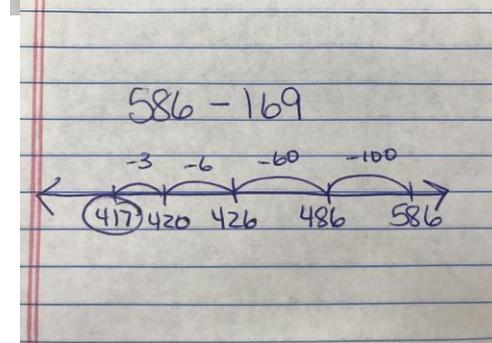
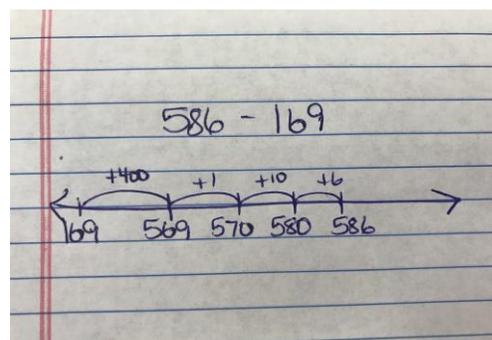
$500 + 130 + 6$

$274 + 362 = 636$

$130 + 500$

**For students with errors related to reorganizing (or regrouping) hundreds, tens, and ones while subtracting:**

- Encourage students to think about adding up in parts rather than subtracting. Ex:  $586 - 169 = \_$  could be thought about as  $169 + \_ = 586$ .
- Encourage students to subtract or add up in parts using a tool such as the open number line
  - Students can use the number line to find the difference of two numbers by counting back--start with the minuend & count back by the subtrahend (top picture)
  - Students can also use the number line to find the difference of two numbers by adding up in parts--start with the subtrahend & count up until they reach the minuend (bottom picture)



**For students struggling to decide if their answer is reasonable:**

- Provide opportunities for students to estimate sums and differences prior to solving tasks, then revisit the estimate to see if their answer is reasonable.

# Next Steps and Instructional Moves

<b>Progressing (cont.)</b>	<ul style="list-style-type: none"><li>○ Provide opportunities for students to find the closest hundred or closest ten (rounding) before adding or subtracting.</li><li>○ Provide opportunities for students to estimate as a daily routine using <a href="http://www.estimated180.com">www.estimated180.com</a> and other ideas.</li></ul> <p><b>For students having trouble identifying the number of steps in a word problem:</b></p> <ul style="list-style-type: none"><li>● Have students retell tasks in their own words. Identify the actions in the problem and whether there are 1 or 2 steps that need to be done in order to answer the question.</li><li>● Use numberless word problems and have students retell &amp; discuss the action(s)<ul style="list-style-type: none"><li>○ Encourage students to use language first, next, then, last as they retell</li><li>○ Students should explain what math operation they think of as they discuss the problem</li><li>○ Add back in the numbers (single digits if necessary) &amp; have students write an equation(s) to match the problem</li></ul></li></ul>
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<b>Meets Expectation</b>	<p><b>Students that are consistently scoring “Meets Expectation” will have a variety of strategies for addition &amp; subtraction and will also demonstrate flexibility in knowing when and how to use additional strategies. Students will exhibit fluency (efficiency, flexibility, and accuracy) and will also be able to check their work by solving with another strategy or by using the inverse operation. Students will also be proficient in determining which operation is required and how many steps are in a word problem. Students will consistently use estimation strategies to judge the reasonableness of their answers.</b></p> <p><b><u>Next Steps:</u></b></p> <ul style="list-style-type: none"><li>● Pose two-step tasks that require students to add and subtract numbers within 999.</li><li>● Give students a two-step equation and provide them with opportunities to create story contexts that match the equation.</li><li>● Only move to exposure to the standard algorithm after students have demonstrated understanding of expanded form and are able to clearly articulate how hundreds, tens, and ones are reorganized (or regrouped) when necessary.</li><li>● Activity: Have students play a game to create the greatest sum. Students use a stack of number cards 0-9. First student draws 6 cards and arranges them in a way that creates two 3-digit numbers. They then add their numbers to calculate a sum. The second student repeats these steps. The student who creates and correctly calculates the greatest sum wins that round.</li></ul>
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