

They use place value understanding and properties of operations to add and subtract (Standards 2.NBT.5–9).

Standard 2.NBT.7 Add and subtract within 1,000 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, and ones and ones, and that it is sometimes necessary to compose or decompose tens or hundreds.

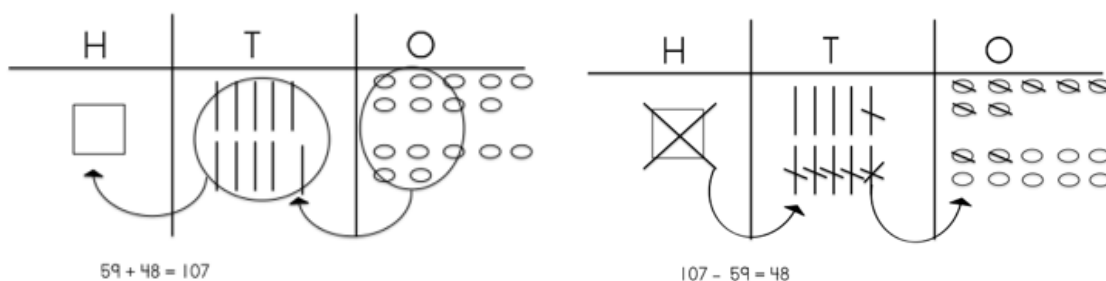
Please Note: There are several effective strategies to help students add and subtract. The most beneficial strategies are listed on this page. Students need to gain a strong foundation in adding and subtracting numbers. The natural progression of strategies is to learn the picture method, then the show all totals method, and finally the algorithm. Students should not progress to the different strategies too quickly. Spend several weeks developing the purpose of place value with the picture method and show all total method before introducing the algorithm. As students learn new strategies have them solve one problem using multiple strategies and make connections on how they relate.

In first grade students add a two-digit number with a one-digit number where the ones are combined have a total sum greater than ten, thus creating the need to trade (regroup) ten ones for a one ten (see 1.NBT.4).

Key Elements: adding and subtracting numbers within 1,000 using different ways to solve.

Strategies for addition and subtraction:

1. **Picture Method** Before introducing the picture method with a pictorial representation, have students use base ten blocks to represent the problem. After practicing adding with base ten blocks, represent the problem with base ten blocks and the pictorial representation. Do not rush this stage; students must have a clear understanding of this method before learning a new strategy. Start with adding a two-digit number that only regroups in the tens. Move to adding a two-digit number that regroups in the hundreds. Add a two-digit number that regroups in both the tens and hundreds. Below is an example of a two-digit number that regroups in the tens and the hundreds. For subtraction it's the opposite steps. Students only draw the total and take away/subtract one partner to find the answer.



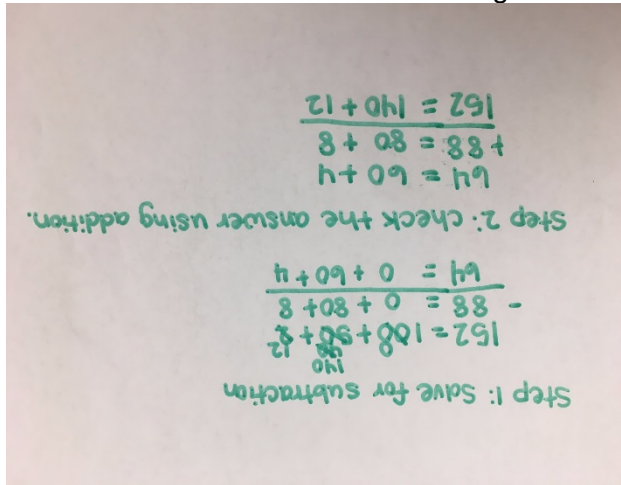
2. **Show All Totals Method** is the next strategy to learn after students have mastered the picture method. Students continue to use the picture method to check their work. With this method it does not matter which place you start to add; you can add the hundreds first or the ones first. It is important that students understand that you need to add the hundreds with the hundreds, the tens with the tens, and so forth. When solving a subtraction problem students use what they know about expanded form to help them solve. It does not matter if students start with the ones or the hundreds (start left to right or right to left) as long as they understand that they are adding like values.

$$\begin{array}{r}
 152 \\
 + 88 \\
 \hline
 10 \\
 130 \\
 + 100 \\
 \hline
 240
 \end{array}
 \quad
 \begin{array}{r}
 240 = 200 + 40 + 0 \\
 - 152 = 100 + 50 + 2 \\
 \hline
 88 = 0 + 80 + 8
 \end{array}$$

3. New Groups Above aka Standard Algorithm Students should not learn this strategy until they have mastered the above two strategies. This is an abstract skill and students need to know the “why” before they learn the steps of “how”. If students struggle with this strategy it is ok, second grade students do not need to have this strategy mastered, they must understand how to use a strategy, not necessarily the standard algorithm. Students in second grade do not need to master this strategy.

$$\begin{array}{r}
 11 \\
 152 \\
 + 88 \\
 \hline
 240
 \end{array}
 \quad
 \begin{array}{r}
 13 \\
 130 \\
 240 \\
 - 88 \\
 \hline
 152
 \end{array}$$

Relating subtraction to addition: It is important for students to see the difference between the different models i.e. how does the picture method in addition and subtraction compare. Have students look and discuss similarities and differences of each method. When students have learned subtraction strategies have them check their work using a addition



strategy.