

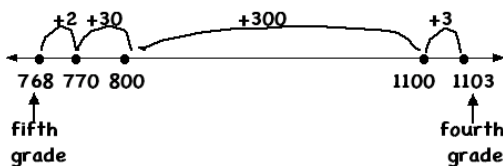


The fourth graders in our school raised \$1103 to benefit the Food Bank. The fifth graders raised \$768. How much more money did the fourth graders raise?

$$\begin{array}{r}
 10\ 9 \\
 0\ 1\ 1\ 1 \\
 \cancel{1103} \\
 +\ 768 \\
 \hline
 335
 \end{array}$$

The difference is \$335. The fourth graders raised \$335 more than the fifth graders.

or



$$300 + 30 + 3 + 2 = 335, \quad \text{so } 1103 - 768 = 335$$

I showed the difference on this number line. You can see the fourth grade amount is \$335 more than the fifth grade amount.

In the first solution, the student used the standard algorithm to take the smaller amount away from the larger amount. The student correctly borrowed across three places, including the 0 in the tens place, to arrive at the correct answer.

In the second solution, the student used a number line to add up from the smaller number to the larger number to find the difference. The number line helps students keep track of the jumps they take from one landmark number to another. This number line strategy helps students see subtraction as a process of finding the difference between two numbers (not just taking one number away from the other). It is also a reliable method for students to use while they master more efficient and sophisticated methods for solving subtraction problems with larger numbers.

## Frequently Asked Questions about Unit Five

**Q: Why aren't students taught the standard algorithm for adding and subtracting larger numbers right away? Why do they use pictures and other methods instead?**

**A:** The standard algorithms (see examples above and on the previous page) are reliable, efficient, and elegant methods for adding and subtracting multi-digit numbers. They work every time, no matter what pair of numbers you're adding or subtracting, as long as they are performed correctly. Problems arise when students attempt to use the algorithms without having mastered the basic addition and subtraction facts, when they don't understand why the algorithms work, when they forget the steps, and when they can carry out the steps yet are unable to use their estimation skills to judge whether their final answer is reasonable.

Using models (as in the number line example above) and other methods helps students see why different strategies, including the algorithm, work. This understanding, along with mastery of basic facts and a good sense of place value, ensures that students carry out the algorithms accurately and with understanding.

**Q: When will students learn the standard algorithms for adding and subtracting larger numbers?**

**A:** The standard algorithms may have been taught earlier this year in Unit Two. Third grade teachers can also use supplemental materials provided with the curriculum to teach the standard algorithms explicitly, step by step, if your state or district expects third graders to master them.