

# Two Ways to Add

Grade 4

Lesson 408

Relevant chapters in the *Digi-Block Comprehensive Teachers Guide*

Book III: Unit 2-1: Adding With the Number Line, page 45

Unit 2-2: Adding With Base Ten Representation, page 49

## Overview

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Students solve addition problems in two ways, using the number lines and using packed blocks. The entire class works together to solve a problem with numbers in the hundreds.

## Objectives

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**Thinking Skills:** Students make connections between the "counting on" view of addition using the number line and the base ten view of addition using the packed blocks. Students compare the results of using each method to solve an addition problem.

**Mastery Skills:** Students learn to add using the number line, which is a "counting on" view of addition. They also learn to add using the packed blocks, i.e., in place value format. They learn that you get the same answer no matter which method you use.

## Materials

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Each group of students needs:

- 100 loose single blocks
- 1 packed block-of-100
- 2 Place mats
- 2 0-100 Number Lines
- 2 sets of Digit-Flip Cards
- 1 set of Number Cards cut from the master sheet
- Two Ways to Add activity sheet

The entire class will work together on the last problem, and will need:

- 1000 loose single blocks
- 1000 blocks, packed
- 1 0-1000 number line
- 2 place mats
- 2 sets of Digit Flip Cards

## Class Demonstration

(10 - 15 minutes)

Put the students into groups of 4 students in a group. Give each group of students a set of the materials listed above. **We are going to do this activity once together before you do it on your own.**

- Choose one group and ask them to draw two number cards. Write those numbers on the board and have each group find those two cards in their own deck of cards. **Make an addition problem out of the numbers on the two cards and write it in the first row of the first column of the chart on the activity sheet.** For example, if the two numbers chosen are 23 and 41, students would write  $23 + 41 =$  in the chart.
- **Let's do this problem on the number line first. How would you do this problem on the number line?** Students should respond by suggesting that (in the above example) you first line up 23 single blocks on one number line and then line up 41 single blocks on the other number line. Then take blocks from one number line and put them onto the end of the other number line. See where the blocks end up on the line.
- **Record the answer in the first row of the second column on the chart.** In the above example ( $23 + 41 =$  ), the blocks end up at 64.

- **Now let's do the same problem with blocks. Do you think we'll get the same answer? How would you do this problem with blocks?**  
Students should respond by suggesting that (in the above example), you represent 23 on a Place mat by putting 2 blocks-of-10 in the tens column and 3 single blocks in the ones column. You then put 41 on another Place mat by putting 4 blocks-of-10 in the tens column and 1 single block in the ones column. You then take the blocks from one Place mat and put them on the other Place mat. You can use Digit-Flip Cards to show that the total in this example is 64.
- **Record the answer in the first row of the third column.**
- **Did you get the same answer as when you used the number line?**

### Student Activity

(15 - 20 minutes)

**You are now going to do this activity on your own. Make sure that you do the following steps.**

- **Draw 2 number cards. Create an addition problem out of the two numbers and write it in the first column of the chart.**
- **Solve the problem using the number line and write the answer in the second column of the chart.**
- **Solve the problem using blocks and write the answer in the third column of the chart.**

**Do you think you will get the same answer for a problem when you use the number line and when you use the blocks?**

For the final class activity, students will work with numbers in the hundreds, solving an addition problem such as  $267 + 633$ .

- Divide the class into two groups.
- One group will do the addition problem using the 0-1000 number line. They will need a large, clean space on the floor in the class or in the hallway (the number line is over 30 feet long!). This group will create a line of 267 blocks. Since there is only 1 number line, they will have to slide those blocks off the line, while they make the second number, 633. They will then combine the two lines and see where they end on the number line.

- The second group will do the addition with packed blocks on the Place mats.
- Compare the answers and the experiences of each group.

## Closure

(5 - 10 minutes)

Bring the class together and ask the following questions.

- **Did you always get the same answer when you used the number line as when you used the blocks?** If anyone got different answers for the same problem, ask the class if they think that is possible. You might want to have each group solve the problem using the number line and then the blocks and then discuss the results.
- **Do you think you would always get the same answer to a problem whether you used the blocks or the number line? Why?** Bring out in the discussion that the blocks and the number line are just different ways of representing the same thing so you should always get the same answer.
- **Is there any advantage of using one method over the other when you have a very large number of blocks?** How long did it take for the number line group to finish the last problem?

## Assessment

As the class works, walk around the room observing student behavior.

- Are the students working collaboratively?
- Are they following the directions correctly?

Observe the students as they do the activity.

- Can the students write the addition problem correctly?
- Can the students represent numbers on the number line correctly? Do they start at the zero on the number line and end at the correct number?
- Can the students add numbers correctly using the number line?
- Can the students represent numbers with blocks correctly? Do they pack as much as possible to represent a number?

- Can the students add numbers correctly using the blocks? Do they pack as much as possible to get the answer?
- Do students understand that they will get the same answer to an addition problem whether they use the number line or the blocks?

### Extension

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- Have students choose 2 number cards and then write a story problem that involves addition for the 2 number cards. For example, if the students drew 129 and 56, they might write the following story problem:  
Sam had 129 baseball cards in his collection. He got 56 more baseball cards. How many baseball cards does he have now?  
Have them solve the problem using the number line and using blocks.