Complements to 100

Grade 1

Activity 108

Relevant chapters in the *Digi-Block Comprehensive Teacher's Guides:*

Book I: Unit 3-1: Joining and Separating, pages 65 - 68

Book II: Unit 3-1: Joining and Separating, pages 57 - 60

Overview

Students use blocks to model separating a block-of-100 into a known quantity and an unknown quantity. They discuss patterns that help them predict unknown addends

Objectives

Thinking Skills:	Students look for and identify patterns to help them predict complements to 100.
Mastery Skills:	Students learn to model unknown addend problems by separating a total into a known part and an unknown part.

Materials

Each student or pair of students needs:

- 1 block-of-100
- 1 "Complements Activity Mat"
- 1 "Complements to 100" activity sheet

Class Introduction (20 minutes)

Show a block-of-100. Ask students to name the block and describe the contents of the block:

- It is called a block-of-100.
- It has 10 blocks-of-10 inside.
- It has 100 single blocks inside.

Tell students, **We have a block-of-100. We are going to separate this block into two parts. One part is going to have 64 blocks. What will the other part be? Let's write this problem down.**

Write the problem on the board. Explain what the parts of the problem mean:

- 100 = 64 + ___.
- **We start with one block-of-100 on our Complements Activity Mat. We put it on the top big section of the mat. That's why we write 100 first.**
- **Then we want to separate the 100 blocks into two parts to see what two numbers are the same as 100. That's why we write the equal sign.**
- **For this problem, we are told that one of the separated parts will be 64. So we need to put sixty-four of the blocks in one of the bottom sections.**
- **We want to find out what the other part is. We will put whatever is left in the other section. We can count these blocks and fill in the blank with the answer.**

Have a student volunteer put the block-of-100 in the top section of the Complements Activity Mat. Ask the student to open the block-of-100 and take out 64 blocks. Does the student:

- Take 6 blocks-of-10 and then 4 single blocks?

or

- Open the blocks-of-10 and count single blocks up to 64?

Have the class count the blocks together to be sure that the student removed 64 blocks. Have the student:

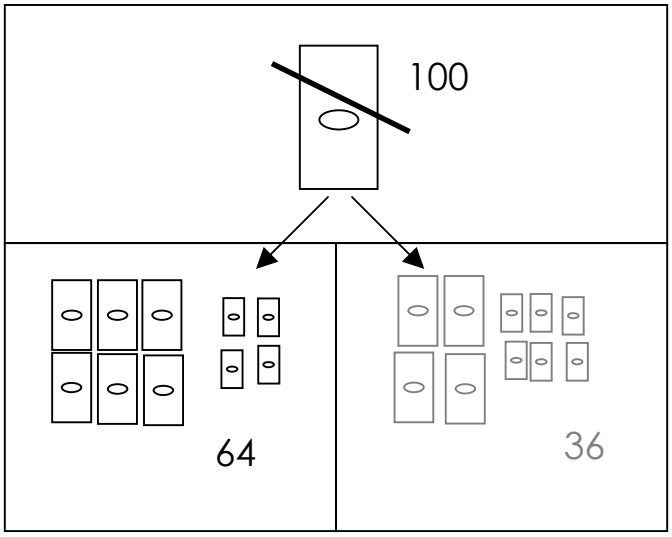
- Put 64 blocks on one bottom section of the mat.
- Put the rest of the blocks on the other section of the mat.

- Count the blocks in the other section (36).
- Fill in the blank.

Ask students how many blocks there will be altogether when you pack everything up again.

- There are 100 blocks altogether on the mat. 64 plus 36 equals 100.
- Some students may need to pack the blocks to feel confident that there are 100 blocks altogether.
- No blocks have been added to the mat or taken from the mat. *(Note: Some holders were removed. Remind students that these holders have no value.)*

Draw what the class did with the blocks on the board to model how to show their work:



Repeat with more examples (as needed) of separating a block-of-100 into two parts. Before doing the next problem, emphasize the importance of packing up the block-of-100 entirely before starting another problem.

On the final example, have students try to predict the answer before they do the problem with blocks. Discuss what it means to predict, **When we predict we are trying to imagine what is going to happen with the blocks. We write down the answer we think we will get. And then we do the problem with the blocks and check to see if the answer we predicted was correct. We don't change our prediction after we do the problem. At first, we probably won't predict the actual answer and that's okay.**

After we've done lots of these problems, you will get better and better at imagining the blocks. Note that when predicting, students are very much encouraged to draw or write their expectation of the process and the outcome.

Activity (20 minutes)

Distribute the "100 Complements" activity sheet, activity mat, and blocks-of-100. Have students:

- Work individually or in pairs.
- Model the first problem with blocks.
- Make a drawing to record what they did with the blocks.
- Continue separating 100 into two parts as directed in the rest of the problems on the activity sheet.

On the final problem, students should try to predict the answer like they did in the last example during the Introduction.

Closure (10 minutes)

Have students share their observations. Discuss:

- **What was easy/difficult about this activity? Why?**
- **What did you notice as you used the blocks? Did you always have to open the block-of-100? How many blocks-of-10 did you have to open?**
- **Did you come up with faster or easier ways to use the blocks?**
- **What did you notice about the solutions to each problem?**
- **Did you notice any patterns? What were they?**

Ask at least two or three students to share their strategy for predicting the last answer. Put a new problem on the board:

- 100 = 32 + ____
- Have students write the problem and their prediction on a slip of paper to collect.
- Use this prediction as a quick assessment tool.
- Repeat this activity and keep records of student improvement over time.

Assessment

As students work, observe and note:

Do they-

- Accurately model each problem with blocks?
- Have any difficulty drawing what they did with the blocks?
- Remember to pack up the block-of-100 for each new problem?
- Know how to read the equation form?
- Understand the meaning of the plus and equal signs?
- Identify any patterns? For example, the digits in the tens place always add up to 9, while the digits in the ones place always add up to 10?
- Predict using a strategy? Can they describe their strategy?

Extensions

- If students need more work with smaller numbers, repeat this activity with complements to 10, complements to teen numbers (11-19), and other appropriate numbers.
- Have students connect this activity with the similar subtraction equation: (i.e., Discuss how 100 – 27 = _____ is similar to 100 = 27 + _____.)