

Recording Subtraction

Grade 2

Activity 220

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

Book I, 3-6: Exploring Subtraction with the Larger Blocks, pages 80 - 86

Book II, 2-6: Finding Differences, pages 68 - 71

Overview

Students model 2-digit subtraction problems with blocks. They reflect on the process and develop recording techniques.

Objectives

Thinking Skills: Students make connections between the blocks and the symbolic representation.

Mastery Skills: Students model a problem with blocks and represent with a drawing what they do with the blocks.

Materials

Each group of students needs:

- 1 block-of-100 (Students can unpack to get the blocks they need for particular problems.)
- 1 place value mat with digit cards
- 2-3 copies of Activity Sheet #1
- 2-3 copies of Activity Sheet #2

Class Introduction

(20 minutes)

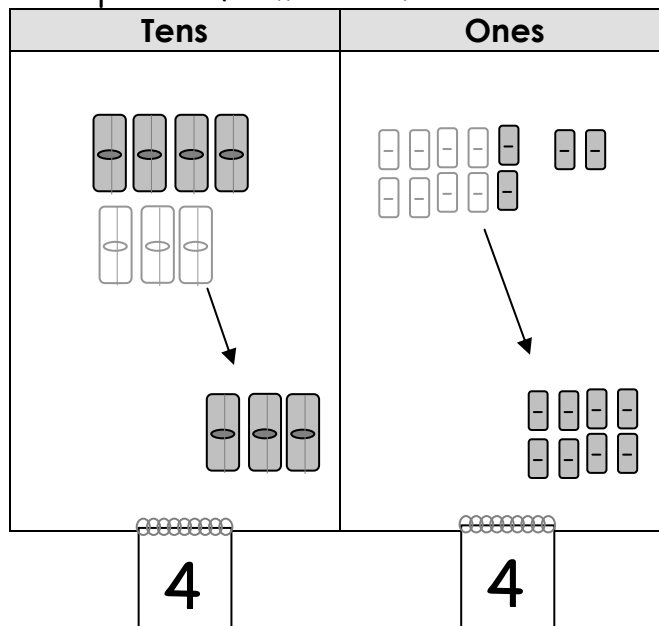
Display a 2-digit subtraction problem, such as: $82 - 38$

Have students read this problem aloud and describe to you what it means; i.e., what is the problem telling them to do.

Explain to the students that they will be thinking about how they can show this problem with blocks, then drawings, and then numbers. Say, **You may not always have the blocks available, so today we will think about ways to record and solve the problem *without* them.**

Ask students to think about what this problem will "look like" before they actually build it with blocks. Ask, **How can I begin this problem using blocks on the mat? What blocks do I need to show the number that we start with?** If students correctly name the blocks needed (8 blocks-of-10 and 2 single blocks), then they are ready to continue.

- Have the students model the minuend (larger number) on a place value mat.
- Next, have students suggest how to separate or remove the 38 blocks from the 82 blocks.
- It is helpful to have students move the blocks to the bottom of the mat rather than off the mat. Here is a diagram of how students can move the blocks to the bottom of the mat to show the 38 they "take away" or "separate" from the 82.



- Have students set the digit cards to show the amount remaining (44).

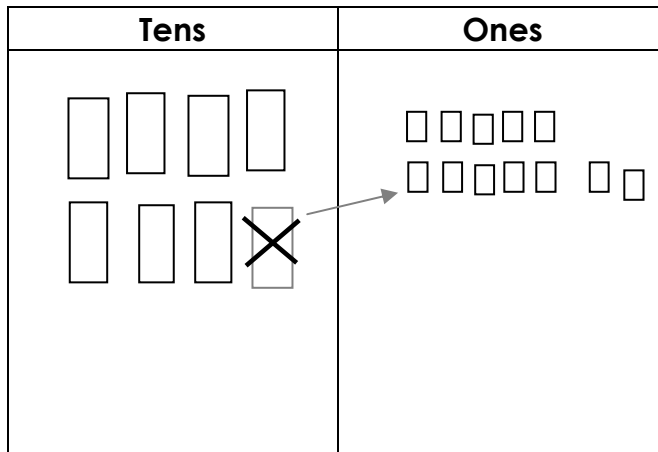
Pass out copies of Activity Sheet #1. Have the students write the problem on the activity sheet. Ask, **How can we record what we've done with the blocks?** It is likely that students will suggest drawing the blocks.

- Have volunteers demonstrate how they can sketch the number 82.
- Remind students that drawings do not need to be works of art. Their purpose is to represent the problem.
- The most important feature of their drawing is simply to make the blocks-of-10 larger than the single blocks, so they can be easily distinguished.

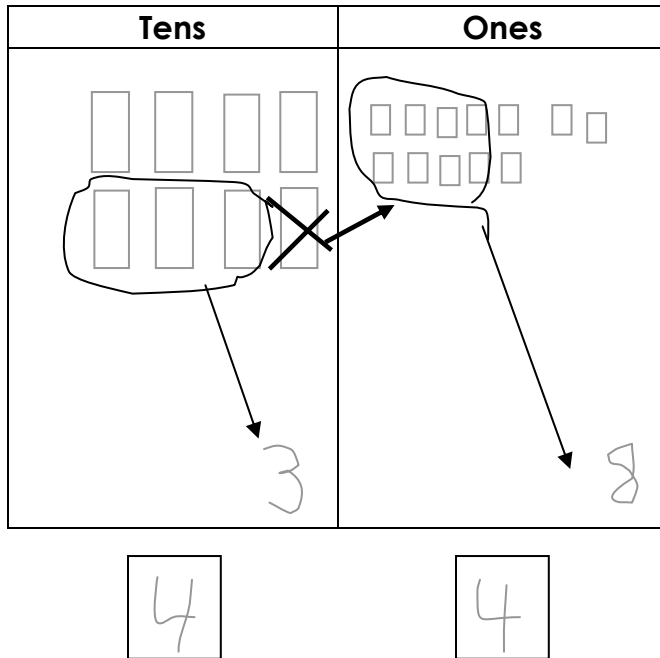
Encourage students to show how they subtracted 38 from 82 in their drawing. Let them "invent" their own notation (i.e., arrows, loops, etc.) and have them share their drawings.

- Students may cross off the block-of-10 they unpacked and draw ten single blocks.

Sample Drawing:



- To show the blocks they took away, students may circle the blocks and draw arrows to where they placed the blocks they took away:



Present another subtraction problem:

$$73 - 56$$

Say, **This time, I am going to ask you to solve this problem *without* using the blocks! Draw to show how you would use the blocks to solve this problem.**

- Observe students as they draw the larger number (the minuend) and then use their drawing to find the difference. Be sure that they somehow represent the regrouping idea. If students get "stuck" and are not sure how to proceed, have them use the blocks to help them.
- Share drawings of the blocks and have students explain how they used them to determine the solution to the problem.

Activity

(20 minutes)

Have students work individually or in pairs. Pass out *Activity Sheets #2*. Have students choose one or two problems to model and record with drawings of the blocks.

As students are working, have them describe what they are doing. As they draw the blocks, ask:

- Can you show me the ____ (larger number/the total) in your drawing?
- How did you show that you took away (subtracted, separated, etc.) this number?
- What does this (point to a part of the picture) show?
- Where is your answer?

Closure

(20-30 minutes)

Display a problem from the activity sheet. Have students share and compare their drawings and number recordings. This presents a great opportunity for students to learn from one another! Encourage students to ask questions of one other in order to help them clarify their explanations.

- Continue until all problems are discussed.
- If time permits, it may be helpful to make transparencies of several papers so students can see their classmates' work more easily.

Assessment

As students are solving problems, observe and note:

Do they -

- Rely on the blocks to solve the problem or can they use their drawing?
- Represent the problem with drawings?
- Distinguish between problems that need regrouping and those that do not?
- Show the regrouping process?
- Understand the connection between the blocks, their drawing of the blocks, and any numbers they write?
- Rely more on the blocks or their drawing of the blocks for a solution?

Extension

- The answers to the assessment questions above will indicate next steps for instruction. Provide opportunities for students to practice subtracting without the blocks.

Name _____

Recording Subtraction

Directions:

1. Write the problem.
2. Use blocks to solve the problem.
3. Draw the blocks to show what you did.
4. Write the answer.

Problem: _____

Tens	Ones

Name _____

Recording Subtraction

Directions:

1. Pick a problem from the box to solve.
2. Use blocks to solve the problem.
3. Draw the blocks to show what you did.
4. Write the answer.

$92 - 35$	$62 - 46$	$78 - 42$	$87 - 58$
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Problem: _____

Tens	Ones
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