

Adding on the Mat

Grade 1

Lesson 119

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

Book I: Unit 3-3, Exploring Addition with Larger Blocks, pages 72 - 76

Book II: Unit 3-2, Exploring Addition with Larger Blocks, pages 64 - 70

Lesson Overview

Students use blocks to model 2-digit addition with and without regrouping on the place value mat. They reflect on what they did with their block model and begin to record their work with drawings.

Objectives

Thinking Skills: Students predict when to pack a new block-of-10 or "regroup." Students begin to record what they do with the blocks.

Mastery Skills: Students learn to use blocks to model 2-digit addition with and without regrouping.

Materials

Each group of students needs:

- 9 blocks-of-10 and up to 18 single blocks
- 1 place value mat
- 2 sets of digit cards (0-9)

[Note: If there are no mats or digit cards available, consider making some using heavy paper. See illustrations below.]

- 1 piece of string (about 16 inches long)

- 1 set of Digi stamps (optional)
- 1 or more activity sheets per student

Class Introduction

(25 minutes)

Have students sit in small groups of 2-4 students. Pass out all materials.

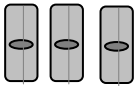

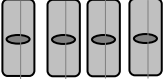

Display the problem:

$$38 + 46$$

First, have students think what these two addends would "look like" before they actually build them with blocks. Ask, **How can I show each number using blocks that are packed as much as possible?**

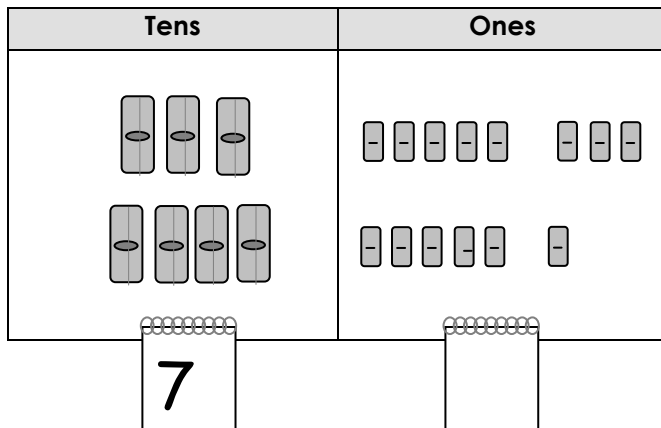
- If students correctly name the blocks needed, then they are ready to continue. If not, more practice with place value and representing 2-digit numbers with blocks is needed before continuing this activity.
- Students may suggest using 26 single blocks and 38 single blocks. This is also a correct way to show the addends, although the blocks are not packed as much as possible.

Have the students model the addends on a place value mat, using a string to separate the addends.

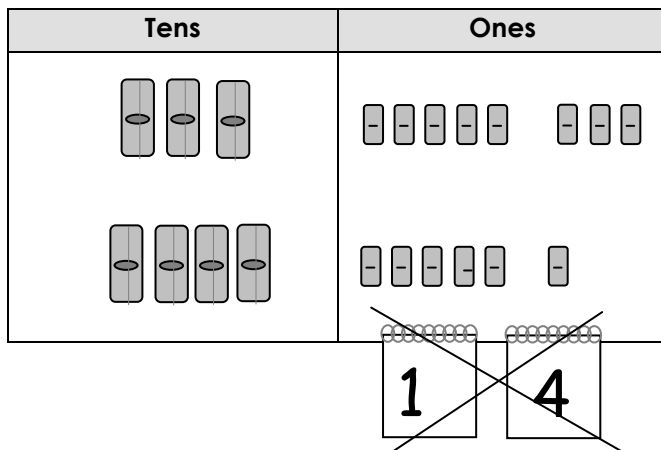
Tens	Ones
	
	

Have students remove the string. Tell students that you want them to **set the digit cards to show how many blocks there are altogether**. Here are some things you might see:

- Students might try to set the digit card in the tens place first. If so, they could count 7 blocks in the tens place and find the "7" digit cards.

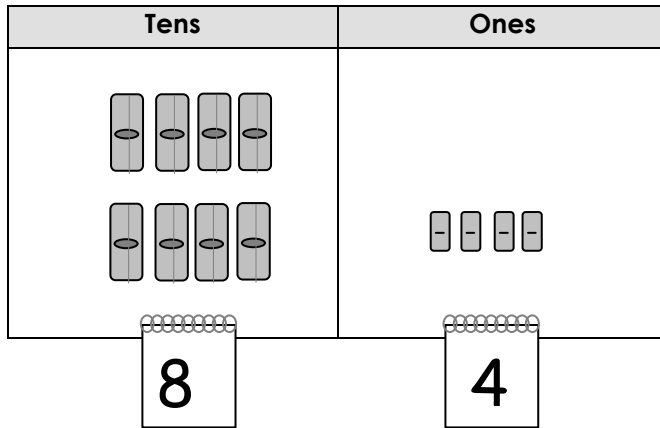


- When looking at the ones, students may count them all and find 14 ones. They may try to set both digit cards for the ones place to show "14." Explain to students that they may use only 1 digit card for each place. Emphasizing that there is just one place for one digit card by the indentation at the bottom of the place mat should help.



- Students may count by tens and then count on the ones: 10,20,...70, 71, ...84. They can set the digit cards to "84." Say, **You counted to 80, but I only see 7 tens. Where did that "extra" ten come from?**

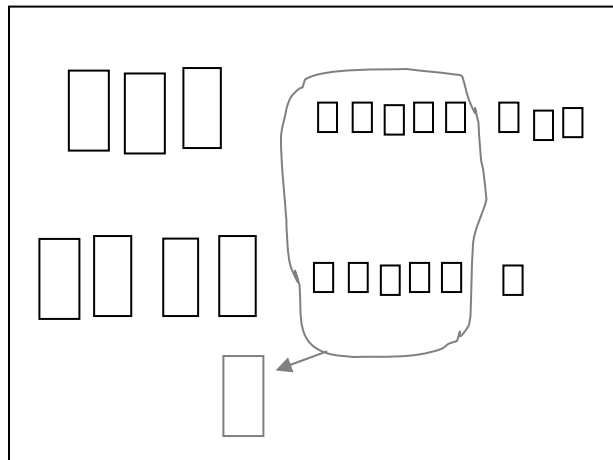
Help students recognize that they need to **pack as much as possible** in order to set the digit cards. With prompting, students will learn to pack a block-of-10 or "regroup":



Have students reflect on what they did by explaining each step and marking in their drawing. Demonstrate or ask a student volunteer to draw the blocks for the class:

- Draw or stamp the blocks-of-10 and single blocks for each addend.
[Note: These drawings do not have to be elaborate or exact as long as the blocks-of-10 look bigger than the single blocks.]
- Show where the new block-of-10 came from. One way to show this regrouping is to loop 10 singles from the addends and draw an arrow to show the "new" block-of-10 in the sum.

Sample Drawing:



[Note: It is the specific intention of this lesson to give students the opportunity to develop their own recording techniques for their work. The teacher should assist students in being clear in their recordings

so that others understand their work. However, it will be very important not to insist on a particular method.]

Repeat with one or two more examples until students are ready to try problems on their own in their groups. Make sure to have students try a problem that does not require regrouping.

Activity

(20 minutes)

Have students work individually or in pairs. Have them choose 1 or more problems to solve using the blocks. After they are finished working with the blocks, have them record what they did by drawing and/or stamping the blocks.

As students are working, walk around and make sure they **pack as much as possible** (regroup) to show the sum and set the digit cards. If possible, before students begin drawing, have them show you the sum on their mats.

As they begin recording what they do with the blocks in a drawing, ask,

- **Can you show me the ____ (addend) in your drawing?**
- **How did you show that you are combining them?**
- **What does this (point to a part of the picture) show?**
- **What is your answer?**

Closure

(20-30 minutes)

Display a problem from the activity sheet. Ask, **Who solved this problem?** Have students share and compare their drawings. 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 -

- Model each addend with blocks?

- Find the sum?
- Pack as much as possible before setting the digit cards? Or do they pack after finding the sum by counting tens and then counting on ones?
- Distinguish between problems that need regrouping and those that do not?
- Represent each addend in their drawings?
- Show the regrouping process in their drawings?
- Understand the connection between the blocks and their drawing of the blocks?

Extensions

- Ask students to give estimates for the sums (i.e., ask, **Is it between 70 and 80? 80 and 90?**, etc.) before modeling the problems with blocks.
- Ask students to predict the sums by setting the digit cards before combining their blocks.
- Repeat the activity by asking students to predict when they will regroup and when they will not.

Name _____

Adding on the Mat

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.

$25 + 38$	$42 + 36$	$54 + 29$	$34 + 46$
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Problem: _____

Tens	Ones
