Together in a Line

Grade 1

Lesson 112

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

Book I: 3-2, Joining Groups of Single Blocks, pp. 69-71

Book II: 3-2, Combining Groups of Single Blocks, pp. 61-63

Lesson Overview

Students work in pairs. Each student selects a card with a number (1-25). Students then show that number of single blocks on a number line. Partners combine their blocks on a single number line and record the corresponding number sentence. Students begin predicting sums.

Objectives

Thinking Skills:	Students connect the physical representation of the addition operation with the equation form. They also connect the meaning of different forms of written equations. Students predict the outcome of addition operations.
Mastery Skills:	Students learn to write equations in horizontal form and in vertical form. They master how to use blocks on number lines to solve addition problems.

Materials

Each student needs:

- 50 single blocks
- 0-50 number line

- Number cards (1-25)
- Activity Sheet 1 or Activity Sheet 2 (for Part One)
- Activity Sheet 3 or Activity Sheet 4 (for Part Two)
- Extension Activity Sheets (as needed)

For demonstration:

- Overhead transparency of the activity sheets (as needed)

Class Introduction (20 minutes)

This activity should be repeated over the course of several sessions. It is divided into part one and part two to give students the opportunity to make the transition from blocks to mental math/written methods through prediction techniques.

In this lesson, students write equations in horizontal form with the equal sign on both sides of the addition problem. They also write addition equations in the vertical form.

Part One

Have a pair of students model the activity:

- Each student selects a card.
- Each student puts the indicated number of blocks on a number line.
- Students combine the blocks onto one number line. (Note: It is easiest to gently slide the blocks from one number line onto the other.)
- Students write an addition sentence or equation to match the operation they did with the blocks. They can write the equation in either horizontal or vertical form. If they write it in horizontal form, the equal sign can go on either the right or the left. Be sure to model both. For example:

17 + 28 = 35 35 = 17 + 28	17 + 28 35

- Model how to fill in the blanks on the activity sheet.

Part Two

Include prediction.

After students have worked with blocks on the number lines for a while, they can try to predict the exact outcome of the operation. Explain prediction to the class:

- **When we predict, we want to think ahead where the blocks will land on the number line. In the beginning, it may be hard to know. But after you've done this for a while, it will be easier and easier to predict.**
- **When we predict, it's okay to think in your head or write or draw some quick thoughts on your paper to help you.**

Have students use Activity Sheet 3 or Activity Sheet 4.

- They will write the equation twice: once to predict and the second time to show the actual outcome.
- Show students how to fill in the blanks.
- Explain to students that they should not erase their prediction. Tell them that their predictions will not match the actual answer. The predictions are going to be useful information as they continue the lesson.

Activity (15 minutes)

Pass out the materials. Have students work with a partner to model and record addition sentences. When they have filled in all the spaces on the activity sheet, remind students to use the back of the paper to continue writing equations as they use the blocks.

Closure (15-20 minutes)

Part One

Write some addition equations either horizontally or vertically. Have students write a matching addition equation in the other format.

Part Two

Have students set up problems with blocks on two number lines. Ask other students to write matching equations and to predict the sums. Repeat as often as necessary.

Discussion points:

- **Do you think the sum will be greater than 10? 20? 30? 40? 50? Why or why not?**
- **What helped you predict the sum?**
- **Does it help to write some thoughts down when trying to predict? What do you like to write down?**

Assessment

As students are working observe the following:

- Do students place the blocks properly on the number line?
- Do they count the blocks one at a time as they place them on the number line? Do they look for the number and fill the blocks up to that point on the number line?
- To combine the blocks, do they slide the blocks from one number line onto another? Do they remove the blocks from one number line and place them one at a time onto the other number line?
- Do students write an appropriate addition equation horizontally? Vertically? On their own without the activity sheets?
- Do they understand that the two forms of the addition equation are equivalent?
- Are students beginning to give a prediction within a reasonable range?
- Are they keeping any notes to help them predict?
- Do they explain their thinking?
- Which students are beginning to predict accurately?

Extensions

- Have students work in teams of three. They can use Extension Activity Sheet 1 or Extension Activity Sheet 2 to write equations for combining three addends. Attach two number lines to form a 0-100 number line and use the same number cards.
- Have students use Extension Activity Sheet 3 to separate an addend from a total. (For example, 25 = 16 + ___. Students put 25 blocks on a number line. They slide 16 blocks from the 25 onto another number line. How many blocks are left?)

Name _____

Together in a Line

_____ + _____ = _____

_____ = _____ + _____

_____ + _____ = _____

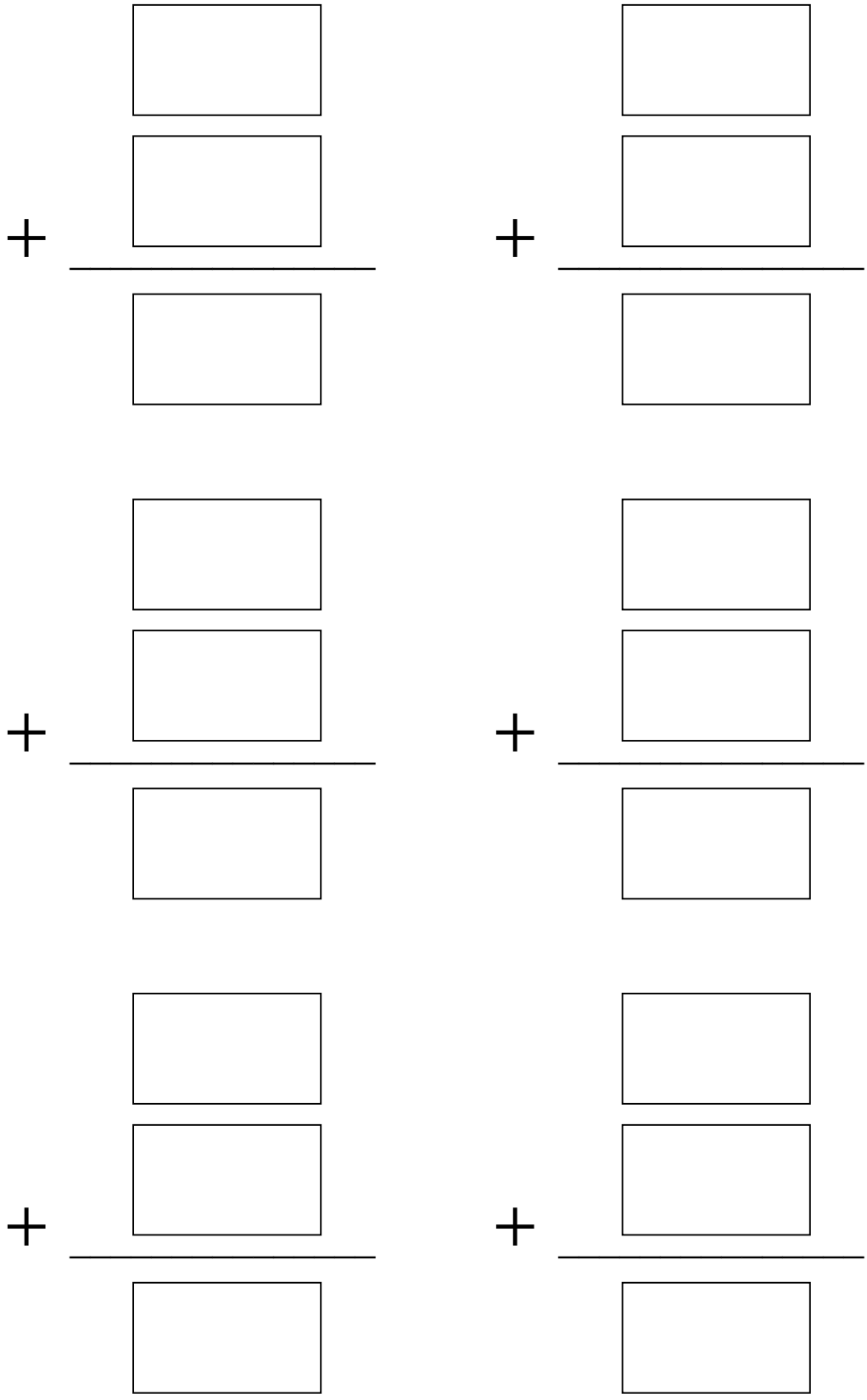
_____ + _____ = _____

_____ = _____ + _____

_____ + _____ = _____

Keep playing. Write more equations on the back.

Name _____



Keep playing. Write more equations on the back.

Name _____

Together in a Line

_____ + _____ + _____ = _____

_____ + _____ + _____ = _____

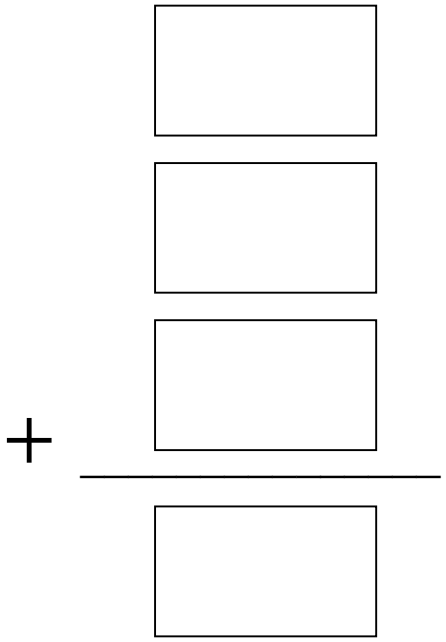
_____ = _____ + _____ + _____

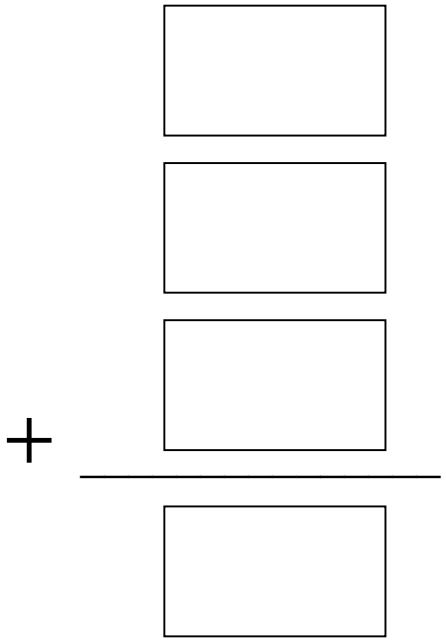
_____ = _____ + _____ + _____

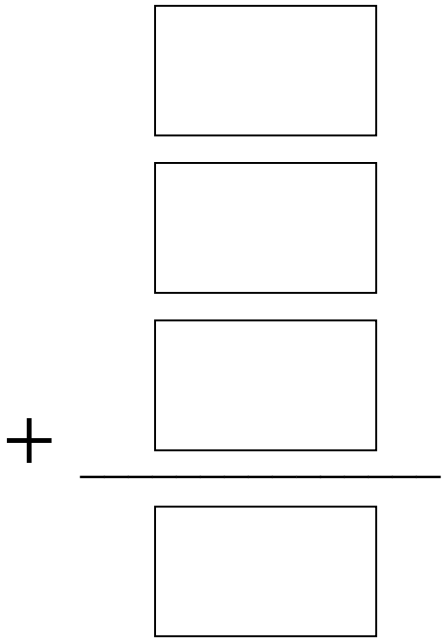
_____ + _____ + _____ = _____

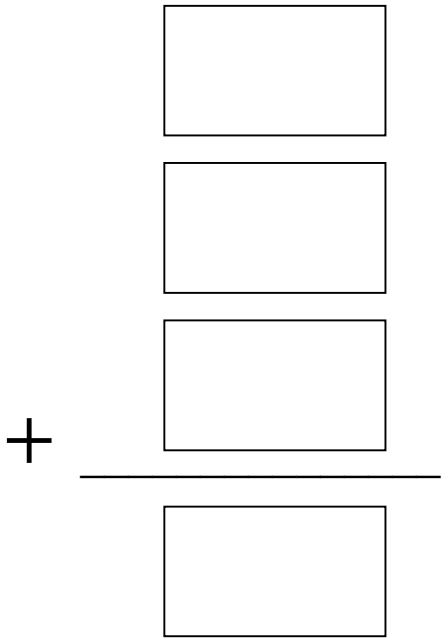
Keep playing. Write more equations on the back.

Name _____









Name _____

Together in a Line

_____ = _____ + _____

_____ = _____ + _____

_____ = _____ + _____

_____ = _____ + _____

_____ = _____ + _____

_____ = _____ + _____

Keep playing. Write more equations on the back.

Name _____

Together in a Line

Prediction: _____ + _____ = _____

Actual: _____ + _____ = _____

Prediction: _____ + _____ = _____

Actual: _____ + _____ = _____

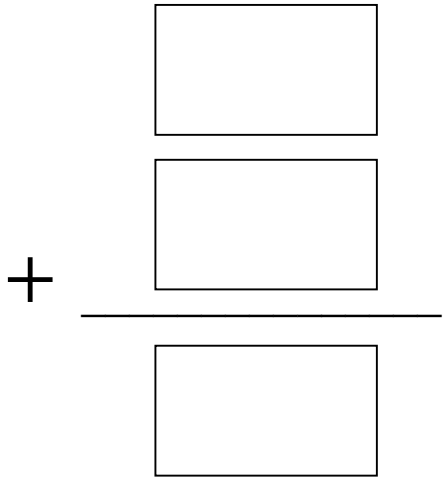
Prediction: _____ = _____ + _____

Actual: _____ = _____ + _____

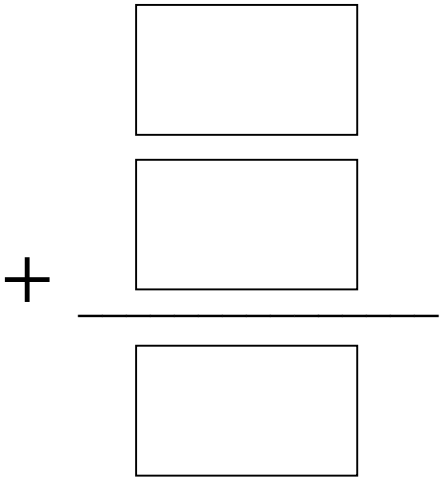
Name _____

Together in a Line

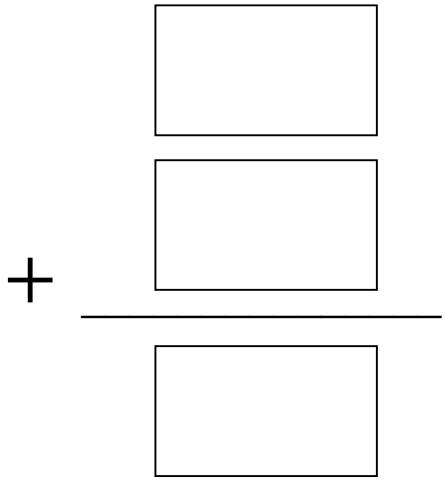
Prediction:



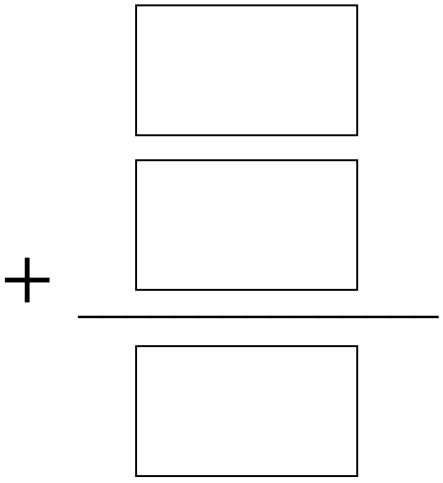
Actual:



Prediction:



Actual:



1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25