

Let's Share

Grade 4

Activity #423

Relevant Chapters in the *Digi-Block Comprehensive Teacher's Guide*:
Book III, 4-4: Modeling Division, pages 114 - 117

Overview

Students use the Digi-Block materials to explore division.

Objectives

Thinking Skills: Students use their intuitive sense of sharing materials fairly to conduct fair share activities.

Mastery Skills: Students learn to use the blocks to represent a division problem. They connect the blocks to the numbers used in the problem.

Materials

Each group of students needs:

- 1 block-of-100 (Students can unpack to get the blocks they need for particular problems.)
- 1 activity sheet
- 5 blank pieces of paper (for drawing and explaining their work)
- Paper plates (optional)

Class Introduction

(15-20 minutes)

Introduce the lesson by presenting the following story problem:

Three fourth graders want to share 63 dollars evenly.
How many dollars should each fourth grader get?

Have students use the blocks to model the problem for the class:

- Have a student represent the 63 dollars with 6 blocks-of-10 and 3 single blocks.
- Ask three students volunteers to be the "sharers".
- Allow the students to share in whatever manner they wish – each taking 2 blocks-of-10 and 1 single block in whatever order they want is acceptable.
- Ask students to explain their thinking in choosing the blocks that they did.

Together as a class, write and explain a number sentence to describe the sharing that took place. ($63 \div 3 = 21$)

When the class is ready, introduce a story problem that involves regrouping in order to share fairly:

Four students want to share 60 pieces of paper.
How many pieces of paper should each student get?

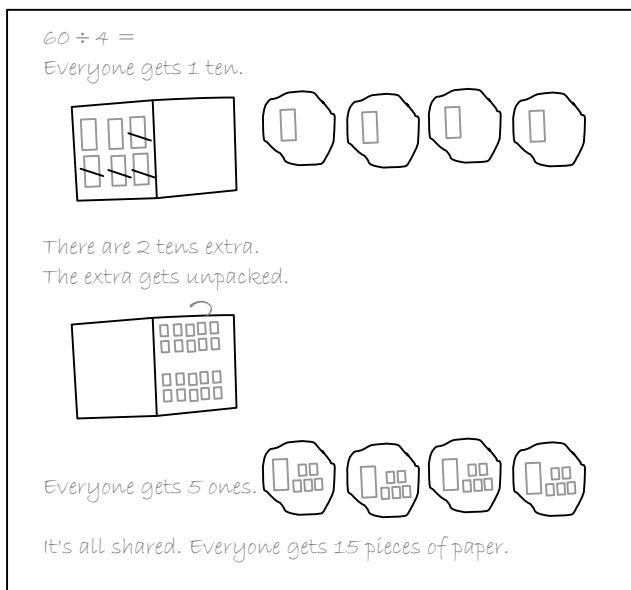
Have students use the blocks to model the problem for the class:

- Have a student begin by representing 60 pieces of paper with 6 blocks-of-10 and 0 single blocks.
- Ask four students volunteers to be the "sharers".
- Allow the students to share in whatever manner they wish. However, most students begin by each taking 1 block-of-10.
- Students must unpack 2 blocks-of-10 to make 20 single blocks that are then shared fairly by giving each student 5 single blocks.

Ask each student in the class to reflect on the process of sharing the 60 blocks fairly among four students. Pass out a blank piece of paper, have each student:

- Draw a picture of the process.
- Write about the process.
- Represent the process with a number sentence.
- Tell about the process to someone else in the class.

Here is an example of how a student might illustrate and explain the problem:



Activity

(20 minutes)

Pass out the blocks-of-100, 4 blank pieces of paper, and the activity sheets. Have paper plates on hand. Explain to students that they can use the paper plates as needed. The plates can be used to represent the number of equal groups. (Note: If students are more advanced, they can just share the blocks by physically separating them.)

Have students model the problems on the activity sheet in order to explore a variety of division story problems.

Closure

(10-15 minutes)

Go over the results for the first three problems. Then, ask each group of students to present the story problem that they wrote for #4 on the activity sheet.

- Have students estimate and/or predict the answers to these problems.
- Have students explain their thinking.
- Discuss reasonable estimations and predictions to division problems.

(Note: For estimation, students just need to provide a reasonable range for the answer. For prediction, students should try to give an exact answer by mentally calculating the answer. When predicting, students may use written notations.)

Assessment

- Do students accurately represent the amount to be shared within the story problem?
- Do students share the blocks fairly?
- Do students model the division process with pictures?
- Do students model the division process with words?
- Do students provide a number sentence to represent the division process?
- Do students clearly explain their thinking?
- Do students clearly identify what each of the numbers represents in the number sentence?
- Do students give a reasonable estimate?
- Are students beginning to predict with ease and accuracy?

Extension

- Have students work with division examples in the hundreds, such as $630 \div 5$.
- Provide more examples of different kinds of division problems, such as $435 \div 5$, where students need to unpack (regroup) immediately.
- Have students practice with division situations where there is a remainder. Discuss with the students how to represent the remainder.