Even Shares

Grade 3

Activity #326

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 evenly to conduct even 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:

- 5 blocks-of-100
- 1 activity sheet

Class Introduction **(15-20 minutes)**

Problem 1:

Introduce the lesson by presenting the following problem:

Four third graders want to share 48 blocks evenly.
How many blocks should each third grader get?

Have a group of four students use the blocks to model the problem for the class:

- Give the students 4 blocks-of-10 and 8 single blocks to share.
- Allow the students to share in whatever manner they wish – each taking 1 block-of-10 and 2 single blocks 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. (**48 ÷ 4 = 12**)

Problem 2:

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

Four students want to share 60 blocks evenly.
How many blocks should each student get?

Have a new group of four students use the blocks to model the second problem for the class:

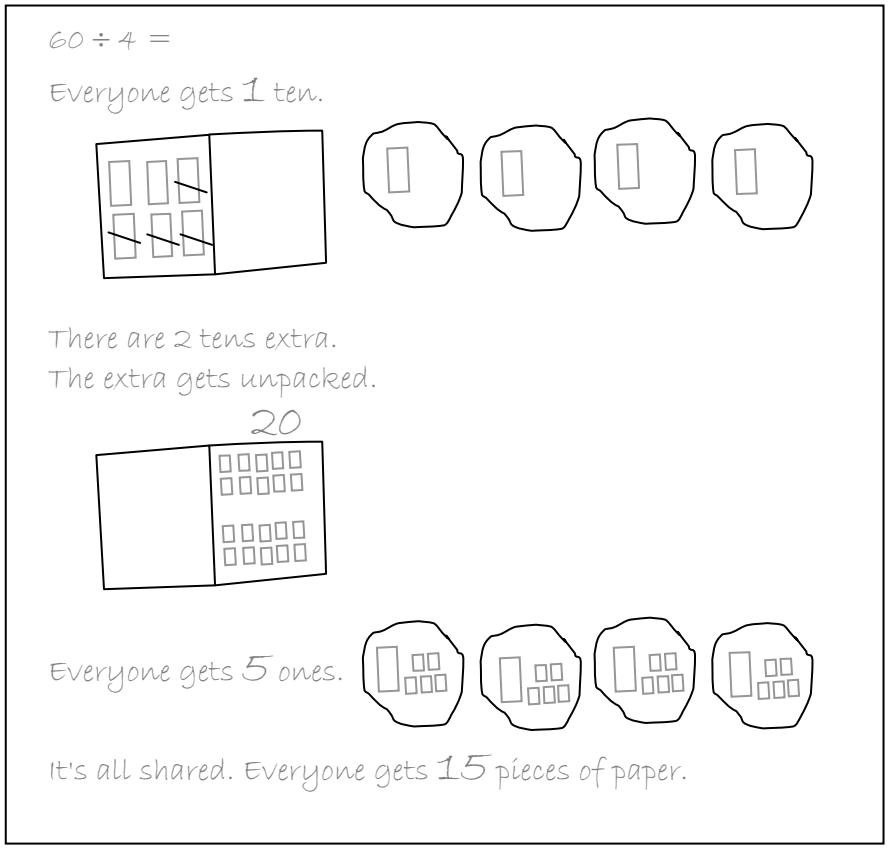
- Give the students 6 blocks-of-10 and place them in the center of their workspace
- Allow the students to share in whatever manner they wish. However, most students begin by each taking 1 block-of-10. (Working with the biggest blocks first is more efficient and naturally aligns with the algorithm.
- Because the 2 blocks-of-10 cannot be shared in the packed form, students must unpack 2 blocks-of-10 to make 20 single blocks. These

single blocks 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)**

Have students work in groups of four. Pass out blocks and the activity sheets to the students. Have students:

- Use the blocks to model the problems on the activity sheet.

- Use words, drawings, and numbers to record how they shared the blocks for each problem.
- Write an equation for each problem.

Closure **(10-15 minutes)**

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

- Have the rest of the class estimate the answers to each problem.
- Have students explain their thinking.
- Discuss reasonable estimations to division problems.

(Note: For estimation, students just need to provide a reasonable range for the answer. It is helpful to give students a choice of ranges for the answer and have them decide in which range the answer will fall.)

Assessment

- Do students accurately represent the amount to be shared within the story problem?
- Do students share the blocks evenly?
- 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 reasonable estimates during the closure?

Extension

- Have students solve a variety of division word problems with the blocks. Give students paper plates or pieces of construction paper to represent the number of groups.
- Have students make shares with remainders. Discuss how to record answers with remainders.

Names _____

1. Four students want to share 72 blocks evenly.
   How many blocks should each student get?

   Equation: _____

2. Four friends want to share 120 blocks evenly.
   How many blocks should each student get?

   Equation: _____

3. Four third graders want to share 500 blocks evenly.
   How many blocks should each student get?

   Equation: _____

4. Choose your own amount to share. On the back, show your work.