

How Many Ways Make Five?

Purpose

Students will make decisions about how to set up a problem and solve it in reasonable ways, justifying their reasoning.

Materials

For each group of students: blocks (or other objects for counting)

Activity

A. Introducing the Problem

1. Divide students into groups of three or four, and give each group a supply of blocks (or other objects for counting).
2. Explain the following problem to the students: "In how many ways can you divide a set of five blocks into two sets?"

B. Solving the Original Problem

1. Have student groups discuss the problem, decide how they might solve it (including how they might use the blocks), and how they might explain their answers.
2. Listen to student discussions and prompt where necessary with suggestions such as using different sets of five blocks to show the different possibilities.
3. Prompt groups that have found an answer to develop a clear explanation of what they did. Possible answers include the following: two ways (1 and 4, 2 and 3); four ways (1 and 4, 2 and 3, 3 and 2, 4 and 1); or six ways (0 and 5, 1 and 4, 2 and 3, 3 and 2, 4 and 1, 5 and 0).

C. Solving Related Problems

1. When groups finish the original problem, ask them to see what happens with three or four or six or seven blocks.
2. Suggest that students look for patterns in their answers. (This is easiest if their first answer is four ways: the answer is always one less than the number chosen.)

(continued)

EXTENDING
THE



ACTIVITY

Ask students to subtract the numbers of the two sets they form and look for patterns. (For 5 blocks, subtraction gives 3 and 1; for 6 blocks, subtraction gives 4, 2, and 0; for 7 blocks, subtraction gives 5, 3, and 1.)

INCORPORATING



TECHNOLOGY

Have students create five pictures using clip art and group them in different ways.

Standards Links
K.1.6, K.2.1, K.2.2, K.3.2

Activity (continued)

D. Discussion

1. When most groups have solved the problem, discuss with the whole class how students found their answers.
2. Ask students to give detailed explanations of their methods as well as their answers (see answer explanations in part B, number 3).

Questions for Review

Basic Concepts and Processes

During the activity, discuss the following with your students to gauge their understanding of the Standard Indicators:



Show me five blocks.



How many ways did you find to divide your blocks into two sets?
Do you think there are more?



How did you come up with the different ways to divide the blocks into sets?
