



Estimation

Grade Level: 2

Objective By the end of the lesson, children should understand how to estimate, develop a sense of the size of numbers, and practice relations between sizes and numbers.

Teaching method and activities

1. One clear, large container should be completely filled with items of the same size. The other container should be approximately one-half full with the same items that are in the first jar.
2. Show the first jar to the class and ask the students to estimate the number of items that are in the jar. Have them write down their estimates on a piece of paper. Have several students explain why they estimated the way they did.
3. After the students have estimated the number of items in the first jar and explained their estimates, show the class the second jar. Ask the students to estimate the number of items in the second jar, write down the estimates, and explain their estimates.
4. Have 3 or 4 students count the number of items in the second jar. Ask the students to use this information to revise their estimates of the number of items in the first jar if they wish. Ask several students to explain why they revised or did not revise their estimates after gaining information about the second jar.
5. Ensure that everyone understands that because one jar was approximately one-half the size of the other, they could double the number of the items in the second jar to have an estimate of the first. Have each student add the two numbers (the number of items in the second jar plus itself) on their paper. Review the subtraction process as well, showing that it is possible to go in the opposite direction, as if they only knew the number of items in the first jar, by subtracting one-half from the number in the first jar.

Time 30-40 minutes

Materials

1. Two clear, large containers (preferably large jars).
2. Items of the same size (such as corn kernels, seeds, etc.) -- enough to fill one jar and one-half of the other jar.
3. Paper and pencils.

NOTE: This exercise can be made more difficult for Grade Three by filling the second jar to only one quarter and having the students multiply by four, or divide by four, etc.

SUGGESTIONS/MODIFICATIONS

- The students can write in a journal or on a piece of paper an explanation for

The students can write in a journal or on a piece of paper an explanation for their original estimations and continue with the writing throughout the entire lesson in order to increase their ability to explain mathematical concepts.

- The students may be asked to draw the jars and explain the learning process to the class and to someone they know outside of school.
- The teacher may have the jars filled to different levels every day that the children arrive at school and they can estimate the number of items inside. The closest estimator from the previous day is allowed to count the items on the following day.

Source: Mack, Nancy. Bosnia Project: Elementary Mathematics Module: Patterns, Relationships, & Number Sense. University of Pittsburgh.