

Array Back When Understanding Multiplication

Whole Numbers Series

Synopsis

The construction of the pyramids in Egypt is behind schedule because the workers have to wait so long for breakfast. The short order cook has to count out each egg for the many workers. A yo-yo salesman sells him boxed yo-yos to entertain his bored customers. The cook discovers the usefulness of putting the eggs in cartons and counting them by using arrays ($5 \times 5 = 25$ etc.) which cuts down the preparation time.

Questions to ask before viewing

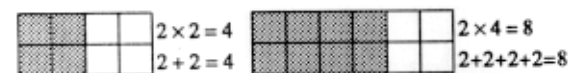
- Give each student or set of students 12 small objects such as checkers, bottle caps, or wooden cubes, etc. Ask them to arrange the objects in a rectangular pattern. They will either do a 2×6 array or a 3×4 (some students may do 12×1). Talk about egg cartons and how eggs are usually sold. You might discuss other divided packaging such as the boxes that Christmas ornaments come in or a sixpack of soft drinks.
- Explain to the students that this kind of packaging is what eventually solved the problem in the story.

Questions to ask after viewing

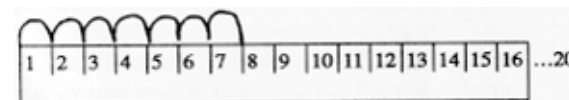
1. How were the yo-yos packaged? (The first packages contained one dozen yo-yos arranged in 3×4 arrays, but there were larger packages also.)
2. How did the cook display 25 eggs? (5 rows and 5 columns.)
3. How could the cook display 15 eggs? (3 columns and 5 rows or vice versa.)

Fallow-up activities

1. Obtain or make graph paper with each square measuring about $1/2$ inch per side. (Traditional graph paper has squares that are too small for young students.) Have the students make arrays for the 2's. With each array, show by addition that the array is true:



2. Using a yardstick and adding machine tape, have the students make number lines and demonstrate the 2 multiplication table by drawing arcs up to 20. You can also make a smaller number line and duplicate it, if you wish.



3. Repeat the above exercise for each multiplication table. Have the children keep their work in a separate folder for future reference. If you plan to teach up to the 10's, the number line will have to go up to 100. It would be fun to have the adding machine tapes use the same intervals, like 1 inch so they can be laid next to each other and the commonalities between several tables can be noted. But, remember that 100 inches equals 8 feet, 3 inches!

Length

- 7 minutes

Subject areas

- Mathematics

Audience Level

- Grades 3-4

Catalog number

- 8349

Annotation

- Multiplication is more than a set of tables to be memorized. It can be demonstrated as an array using rows and columns (4 rows and 3 columns = 12). It can also be viewed as repeated addition ($3+3+3+3=12$). This animated story presents both explanations and shows the usefulness of multiplication. Produced by Davidson Films.

Related titles in the AIMS collection

- 8350 Nuts To You-Properties of Even and Odd Numbers
- 8351 Double Trouble-Exponential Growth Using Multiplication
- 8352 It's a Small World-The Concepts of Similarity in Geometry
- 8353 How Big is a Million? -An Understanding of Large Numbers
- 8354 A Thousand and One Naughts-Multiplying Larger Numbers

AIMS

Discussion Guide

The Children's Encyclopedia of Mathematics

Array Back When Understanding Multiplication

Whole Numbers Series

Objectives

To present multiplication of one-digit numbers by the use of arrays.

To present multiplication as repeated addition.

AIMS Multimedia

9710 De Soto Avenue

Chatsworth, CA 91311

(818) 773-4300

www.aimsmultimedia.com

