

# Let's Explore $6 \times 4$

Grade 3

Activity 314

Relevant Chapters in the *Digi-Block Comprehensive Teacher's Guide*:  
Book III: 3-1, Developing Meaning for Multiplication, pp.75-79

## Overview

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Students solve problems using repeated addition, array, and number line (skip counting) models for multiplication.

## Objectives

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**Thinking Skills:** Students select materials to illustrate multiplication problem situations. They reflect on different models and conclude that they get the same solution regardless of the model chosen.

**Mastery Skills:** Students learn to model, record, and solve 1-digit  $\times$  1-digit multiplication problems.

## Materials

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Each pair of students needs:

- 1 Modeling Multiplication Activity Sheet 1
- 1 piece of 12 x 18 (or larger) newsprint
- Approximately 50 single blocks
- 8 small holders or cups

- 1 number line
- Access to array mats
- 1 "Modeling Multiplication" Activity Sheet 2

### Class Introduction

(20 minutes)

Organize students in small groups. Provide each group with "Modeling Multiplication" Activity Sheet 1 and the materials listed above.

Tell students to read through all 3 problems and think about how they can use their materials to model each problem. Explain that the problems tell 3 very different stories, and encourage them to model each problem in a way that "shows" each story.

Have students reread each story problem one at a time, then arrange the blocks and any other materials to model the situation. They should have 3 arrangements when they are finished, one for each problem.

Have students create a poster by dividing their paper into thirds. Have them:

- Glue one problem in each section.
- Use the spaces to illustrate the model they used to solve each problem.
- Write a number sentence to show what they did.

Have students share their models and posters with the rest of the class.

Students will likely illustrate each problem differently.

- For problem A, they may arrange the blocks in 6 rows, with 4 blocks in each row to represent the array of desks. They may do this on "flat" paper or they may use the array mat, placing the blocks upright along the edges to show 6 rows of 4.
- For problem B, students may count out 4 blocks on the number line to represent a leap of four blocks. They may mark each 4<sup>th</sup> block with a paper strip (or offsetting it on the line), and repeat this six times. They may write or count: 4, 8, 12, 18, 24.

- For problem C, students may set out 6 cups or small holders and put 4 blocks in each to represent the marbles in bags. They may write  $4 + 4 + 4 + 4 + 4 + 4 = 24$ , or  $6 \times 4 = 24$ .

Have students compare their models and discuss how the different materials illustrate the different contexts. They will see that even though the blocks are arranged differently, they can always “see” 6 groups of 4, or  $6 \times 4$ .

- Have students discuss their preferences for different models, and note that all 3 models yield the same answer.

### Activity

(20 minutes)

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Distribute “Modeling Multiplication” Activity Sheet 2 to pairs of students.

Have students take turns being the Modeler and the Recorder.

- The Modeler arranges the blocks to illustrate the problem.
- Both students find the answer.
- The Recorder illustrates the problem/solution and writes a number sentence that matches the problem.

### Closure

(10 minutes)

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As a whole class, share models and solutions for the problems on the activity sheet. Discuss number sentences and answers to each.

Write  $7 \times 3$  on the board. Have students write two different story problems that match the number sentence. Explain that the problems must suggest different models for representing them.

### Assessment

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As students work, observe and note:

Do they-

- Model story problems according to their context?
- Understand that all models yield the same product?
- “See” the fact within each different model?

- Name the factors and the product in the multiplication number sentence?
- Write different story situations given a multiplication fact?

### Extension

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- Create a book of "8 x 4" (or another fact) by having students each contribute a different illustrated story problem. Encourage students to use a variety of contexts/models in their stories.

A

There are 6 rows of desks in Beth's class. There are 4 desks in each row. How many desks are in Beth's class?

B

Franny Flea jumps over 4 blocks in one leap. How far does she go in 6 leaps?

C

Martin has 6 bags. He puts 4 marbles in each bag. How many marbles does Martin have in bags?

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Names \_\_\_\_\_ & \_\_\_\_\_

## Modeling Multiplication

Leandro made 5 bowls of pasta. He wants to put 6 meatballs in each bowl. How many meatballs will he need?

Kristi runs 4 miles every day. How many miles does she run in a week?

There are 4 shelves in the bookcase. There are 8 books on each shelf. How many books are in the bookcase?

A box of Snack Crackers has 8 small bags inside. There are 6 crackers in each bag. How many crackers are there in a box?

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