

## Activity Sheet 3: Ratio and Percentage Problems

Name: \_\_\_\_\_

Date: \_\_\_\_\_

# Keeping It All in Proportion

You are an architect for the firm of RATIO<sup>n</sup>al Innovations, Inc., a company that specializes in using mathematical principles to design environmentally friendly facilities. You have been hard at work designing a water treatment facility for a community where clean water is scarce. Now that your design is almost completed, you have turned your attention to the final steps—designing the management office and confirming details of the water disinfection process with your team. Here are some of the considerations and decisions you need to make:



### WORK THE MATH

*Use a separate sheet of paper for your responses.*

- 1** Your design for the water treatment facility's management office includes a striking glass block wall, covering 7,000 square feet. The bricklaying company can lay 35 square feet of glass blocks per hour. If the company works ten-hour days, what percentage of the job will be complete after four days?
- 2** The entryway of the facility will feature a colorful mural made with tiles designed by local children.

  - a.** Each tile measures 3" per side. If the mural will measure 10' by 40', how many tiles will be needed?
  - b.** The first batch of 50 tiles from the pottery company included two defective tiles. Assuming this defect rate stays constant,

how many tiles should you order to make sure you have enough to complete the mural?
- 3** To disinfect the water, the facility will use ozone (supercharged oxygen) to kill disease-causing microorganisms. If the facility treats 16,000,000 liters of water per day, and 2.25 milligrams of ozone is used for every liter of water processed, how much ozone will the plant require each week?
- 4** The water-quality test equipment normally costs \$375,000. However, because the facility is for municipal use, the vendor offers a 15% discount off its regular price. It also offers an additional 5% discount off the discounted price if payment is made in cash. How much will the equipment cost after both discounts are taken?

#### NOW TRY THIS!