

# School-to-Career Activity

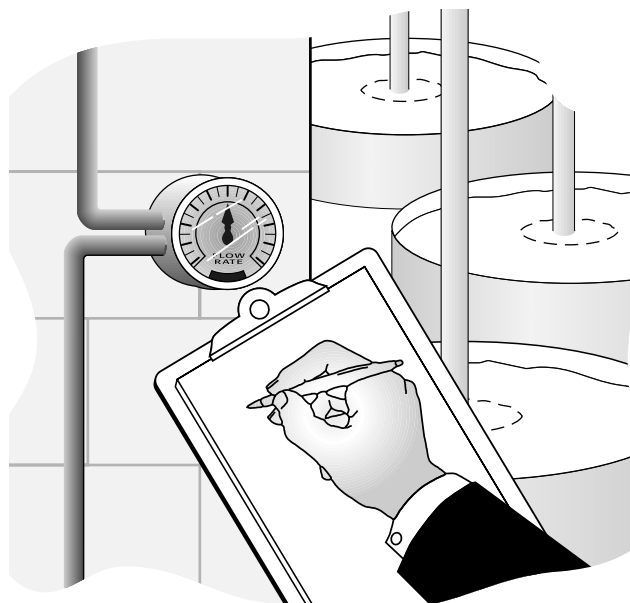
(Use with Lesson 9-3)

## Water Treatment Plant Operator

One important aspect of supplying water to customers is monitoring the flow rate to make sure adequate amounts of water are available. Flow rate is calculated with the equation given below.

$$\text{Flow rate} = \frac{\text{Volume}}{\text{Time}}$$

Suppose you are a water treatment plant operator for the city of Dry Gulch, population 40,000. You have been monitoring water usage. According to readings of a gauge in the treatment plant,  $2.0 \times 10^8$  gallons of water have been used by Dry Gulch in the past 24 hours. You know that the maximum flow rate through the treatment plant is  $7.5 \times 10^3$  gallons per minute. You suspect that the gauge is malfunctioning. Write a brief report to your supervisor explaining why you think the gauge is malfunctioning.



According to the American Water Works Association, in the United States the average person uses 100 to 250 gallons of water per day. In your report, use this information to give a range of estimates for reasonable levels of daily water usage in Dry Gulch. Based on these estimates, explain what you think a properly functioning flow meter should read (in gallons per minute) on a normal day in Dry Gulch.

**According to the gauge, the flow rate would be  $1.39 \times 10^5$  gallons per minute, which is much greater than the known maximum flow rate of  $7.5 \times 10^3$  gallons per minute.**

**Reasonable levels of daily water usage:  $4.0 \times 10^6$  gallons to  $1.0 \times 10^7$  gallons**

**Reasonable flow meter readings:  $2.8 \times 10^3$  to  $6.9 \times 10^3$  gallons per minute**