In these activities you will use a variety of strategies for solving problems involving proportions. After completing each activity, discuss and/or present your findings to the rest of the class.

Activity 1 [Page 1.3]

1. George bought 8 pounds of bananas for $5.

    a. Use the TNS page to make a graph showing the cost for different amounts of bananas. Use the graph to help find the price per pound of the bananas George bought.

    b. How can you find the unit rate without using the graph?

    c. How much would 9 pounds of bananas cost? Explain how you can find the answer using the graph and how you can find the answer using the equation.

    d. Explain whether the units in the equation make sense in the context of the problem.

2. A caterer plans for 8 pounds of beef for every 10 guests.

    a. Does this situation represent a proportional relationship? Why or why not?

    b. What is the ratio of the amount of beef for every 10 guests? How many pounds will there be per guest?

c. Write an equation that represents the proportion in the problem. Explain how the units can help you make sense of the problem.

d. Graph the equation on the TNS page and use the graph to find how many pounds of beef should be prepared for 14 guests. How could you get your answer using the unit rate without using the graph?

3. Lila wanted to make a chart so she would know how much meat she should cook for up to 10 guests. Explain how Lila can make her chart and then create one for her based on the caterer's plan of 8 pounds of beef for every 10 guests. You may want to fill out the chart and then check your answer using the TNS lesson.

Number of Guests	Pounds of Meat

4. Think about the following problems from your work above in question 3.

   A caterer plans for 8 pounds of beef for every 10 guests. How much beef do you need for 14 guests?

   George bought 8 pounds of bananas for $5. How much would it cost for 9 pounds of bananas?

   Which of them could you have solved using a ratio table? A double number line? Explain why at least one of the strategies will or will not work.

5. Jon had a blueprint for a house in which 2 centimeters represented 5 feet. He was trying to figure out the actual length of one of the rooms that was 7 centimeters on the blueprint.

   a. Show two different strategies you could use to solve his problem. Find the unit rate for each strategy. Check your thinking using the TNS lesson.

   b. Write the equation for each strategy and explain how the units would work.

   c. Explain which strategy you would choose to use and why.

6. Simon ordered 4 bags of soil for his plants. Each small group of plants needs $\frac{3}{4}$ of a bag of soil. How many groups of plants can he fill completely with soil? How much soil does he have left? Solve this problem in as many different ways you can think of. Reflect on the strategies you used and answer the following questions.

   a. Which strategy seemed to be easiest?

   b. What are some of the advantages or disadvantages of the strategies if you tried to use them on any problem?

Activity 2 [Page 2.2]

1. The blue line represents the ratio of eighth graders to seventh graders on the team.

   a. Make a list of possible ordered pairs that would come from the equivalent ratios. If (*x, y*) represents (number of eighth graders, number of seventh graders), how many total students does each ordered pair in your list represent?

Ordered pairs	Number eighth graders and number seventh graders	Total students

b. Which of the ordered pairs from your list in part a satisfies both requirements: the ratio of eighth graders to seventh graders is 2:1 and the total number of students is 15?

c. On page 2.2 move the black dot to the point where the two lines intersect. What is this point and what does it represent?

2. The ratio of dogs to cats in the animal shelter is 3:5. There are 24 dogs and cats in the shelter. How many cats are in the shelter? Explain how you found your answer.

3. If x represents the number of dogs and y represents the number of cats, which of the following equations describe a condition in the problem for question 2? Explain your thinking.

   a. $y = \dfrac{3}{5}x$ b. $y = \dfrac{5}{3}x$ c. $x + y = 24$ d. $3x + 5y = 24$ e. $5x + 3y = 24$

4. Insert the information from question 3 into the TNS page to check your answer to question 2.