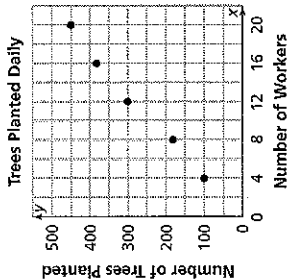


Partner Quiz *for use after Investigation 2*
Thinking With Mathematical Models

The Grant Center for Outdoor Education gives student groups experience in studying nature and helping to restore the environment for fish, birds, and animals.

- The number of seedling trees that can be planted in one day depends on the number of students in the work group. Data from several different work groups are shown in the next graph.



- Draw a line that estimates the pattern in (*workers trees*) data.
- Write an equation for your graph model relating trees planted to number of workers.
- Use your linear model to estimate how many trees will be planted by a work crew of 14. Show how you find your answer.
- Use your linear model to estimate how many workers will be required to plant 270 trees. Show how you find your answer.
- What is the slope of your linear model? What does that slope tell about the relationship between the variables?

Partner Quiz *for use after Investigation 2*
Thinking With Mathematical Models

- The budget for the Grant Center assumes a linear relationship between the number of student visitors and daily operating cost. Some sample (*number of students, operating cost*) values are given in the next table.

Number of Students	Daily Operating Cost
0	\$450
10	\$600
20	\$750
40	\$1,050

- Use the given data to write an equation showing how operating cost C depends on number of students x . Explain how you arrived at the equation.

For parts (b)–(d), write equations or inequalities that match each of the following questions. Then do the required calculation or solve the equation to find each answer.

- For what number of student visitors will daily operating cost be \$690?
 - What will be the operating cost on a day with 12 student visitors?
 - How many students can visit the center if the operating cost is to be at most \$1,000?
- The students at the center found many linear relationships. Find equations for lines that meet these conditions:
 - Pass through the points $(0, 8)$ and $(4, 13)$.
 - Slope -3 and passing through the point $(1, 4)$.
 - Pass through points $(1, 1)$ and $(3, 9)$.