**Stadium Wave**

Suppose you have an internship one summer with a company that makes TV commercials. A client who sells automobiles wants a 15 second wave made by people from all walks of life standing single file along a roadway as the car drives along in front of them. How many people do you need to hire to create a 15 second wave?

You can find information on stadium waves at the following Wikipedia page. <http://en.wikipedia.org/wiki/Wave_(audience)>

**PROCEDURE:**

1. Have 5 classmates stand up in the room and do a wave. A practice run would be useful as you decide on how to do your wave. Time how many seconds it takes to complete a wave with 5 people. Record the data in the table. Then try the wave with different numbers of students.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Number of people doing the wave | 5 | 6 | 8 | 10 | 13 | 16 |
| Time to do the wave  (Nearest tenth of a second) |  |  |  |  |  |  |

1. Graph the data from your table as a scatter plot on the coordinate grid. Label and scale the axes appropriately.



1. Fit a line to the scatter plot. Find the equation of the line by hand or using technology.
2. How does the slope in your equation relate to the context of the problem?
3. How does the *y*-intercept in your equation relate to the context of the problem?
4. Use your equation to predict the amount of time it would take for all students in your class to complete a wave.
5. Using all of the students in your class, find the actual time it takes for the wave.
6. Why do you think your predicted time was not exactly the same as the actual time?
7. Write a report for you employer to answer the question, “how many people it will take to create a 15 second wave?” Explain whether or not the two variables are correlated and if the number of people performing the wave causes the time of the wave to change.