

The Wave

As the experiment is taking place, record the results in the table below:

Number of Students x	Wave Time 1 st Trial	Wave Time 2 nd Trial	Average of Trial Times y	Ordered Pair (x, y)
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

1. Enter your # of students in L1 and average time in L2 in the calculator. Then sketch the graph below.
2. Write an equation that models the data in your chart. Then sketch that line in the graph on the previous page.
3. Based on the information in your table, predict how long it would take 20 students to do the "Wave."
4. Do the "Wave" with 20 students. Does your answer match your predictions? Why or why not?

5. Predict how long it would take 40 students to do the "Wave."
6. Predict how many students would be needed for a 25-second long "Wave."
7. How many students would be needed for a 3-minute long "Wave?"
8. How do you think the graph of your line would change if each person stood up and clapped four times before sitting back down during the "Wave?"
9. Check your prediction to question #9 by collecting data in the table below

Number of Students	Wave Time with 4 Claps	Ordered Pair
3		
4		
5		
6		
7		
8		

10. Enter the new time in L3 and graph the new data on your calculator. What is the difference between the two graphs?
11. Does your result from #10 match your answer for #8? Why or why not?
12. How do you think the graph of your line would change if each person stood up and sat down very fast during the "Wave?"
13. Check your prediction to question #13 by collecting data in the table below.

Number of Students	Fast Wave Time	Ordered Pair
3		
4		
5		
6		
7		
8		

14. Enter the new time in L3 and compare the two graphs. What are the differences?
15. Does your result from #14 match your answer for #12? Why or why not?
16. The speed at which each student is completing the wave is the slope in your equation. So, based on what we have seen so far, how does changing the slope affect the graph?