

Student Worksheet 1

TI-15 Explorer™: A Tap on the Shoulder

W1

Name: _____

Instructions:

1. The purpose of this activity is to investigate the time it takes to pass a tap on the shoulder onto every member of the class and to use this information to work out how long it would take to pass on a tap to 100 people.
2. Your teacher will select five students to stand side by side with their left hands on the shoulders of the person beside them (the last in the line will have no one to put their hand on a shoulder).
 - Have the stopwatch handy to record how long it takes for the following event. Your teacher will tell the left-most student in the line, on a given signal, to tap the shoulder of the person to the left of them, and ask the other students in the line to pass on the tap as soon as they receive it. The student at the end of the line will indicate when they have received the tap.
 - After three or four practices, record the number of students in the line and the time it took to pass the tap through the line in the table below.
3. Your teacher will then select another five students to join the existing line and repeat step 2 above.
4. Students will be added onto the end of the line and the activity repeated until the whole class is involved. Make sure you record the correct number of students against the time.

Number of People	5	10	15	20
Time (sec)									

5. Can you see any pattern in the table above? Find a relationship between the number of people in a line and the time it takes a tap to pass through the line of students. Write down the relationship in words.

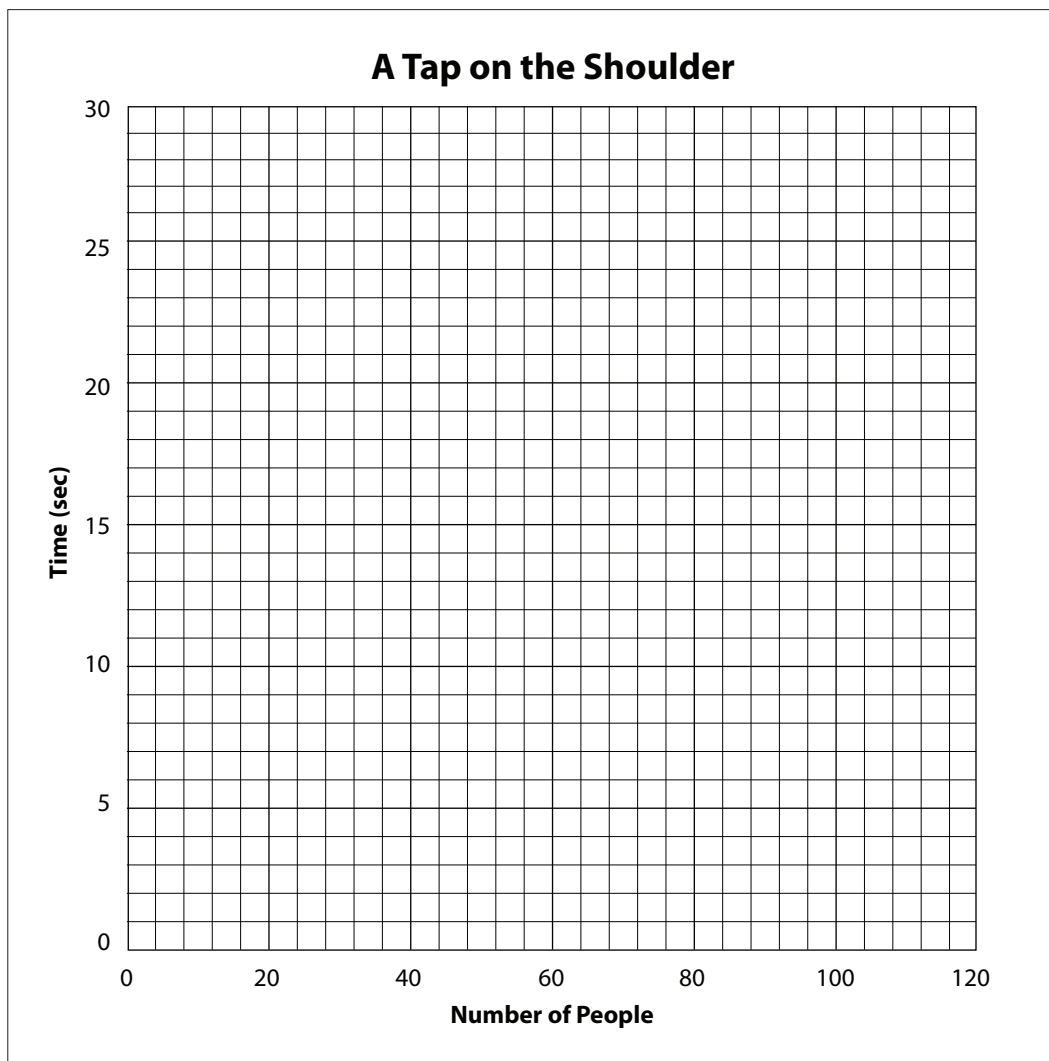
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6. Use your relationship to make a prediction of the amount of time it would take to pass a tap on the shoulder through 100 people.

7. Draw a graph of your data on the grid below:



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8. Use your graph to make a prediction about the amount of time it would take a tap on the shoulder to pass through 100 people. Write your prediction below. Also, describe how you used the graph to make your prediction.

9. Does the prediction from your graph agree with your earlier prediction that was based on the relationship you found between the number of people in a line and time? If not, suggest reasons for why they might be different and which one you believe is the most reliable.

10. Write down a rule in symbols that describes the relationship between the number of people in a line and how long it will take to pass on a tap on the shoulder. You will use this rule in the next worksheet.
