

Bungee Balloon Data Collection Sheet

Team Members: _____

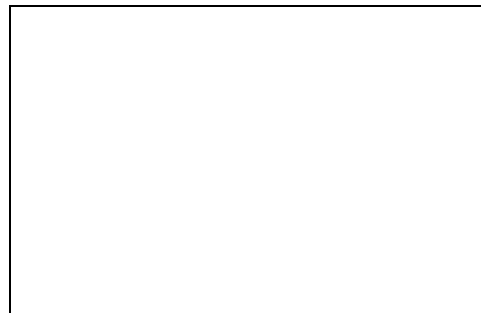
Before entering the data in your calculator, answer the following questions.

1. Which is the independent or control variable? _____
2. Which is the dependent or resulting variable? _____
3. Which data will you enter in L1? _____
4. Which data will you enter in L2? _____
5. Describe the procedure you will use to collect the data. Include how you will be dropping the water balloon and how you will be measuring the distance.

6. Record your data and enter it into the graphing calculator. Be sure to measure the initial drop distance.

L ₁	L ₂

7. Use STAT PLOT and ZOOM 9 to graph your data.
8. Draw a sketch of your data.



9. What is the shape of your data? _____
10. Does the relationship appear to be increasing or decreasing? _____
11. The conjecture is that the data might be best modeled by a linear function. Do you agree? _____

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Directions for Transformation Apps. (Transfrm)

1. Press APPS
2. Arrow down to Transfrm and press ENTER. If the application is already running, select 2:Continue.
3. Press Y=. Scroll down and make sure there are no equations in Y=.
4. In y1, type $Ax + B$
5. Make sure your data is still displayed on the graph screen.
6. Select various values of A and B until you get a line that appears to fit the data.

a. Remember A represents the rate at which the drop distance is changing. State the value for A and how you found it.

b. Remember B represents the initial drop distance. State the value for B and how you found it. _____

7. Propose a model for the Rubber Band- Balloon Drop relationship.

8. Do you think your model is good? Explain. _____

9. Ask your teacher for the drop height and determine the number of rubber bands you will need to drop your balloon this distance without hitting the ground. How many rubber bands will you need? _____ Show your calculations below.

10. Use the linear regression feature of the calculator (STAT, CALC, 4: LinReg ($ax+b$), ENTER) to obtain another mathematical model of your data. Compare the two functions. Calculate the number of rubber bands needed using this function. _____

11. Ask for the necessary number of rubber bands and tell your teacher when you are prepared for the drop contest.