

Egg Bungee Jump Lab

In this activity, we will need to develop a mathematical model to describe the amount of stretch in a bungee cord of various lengths. Your goal is to develop an equation that can be used to predict the number of rubber bands needed to provide a “safe jump” from a specific height. *Of course, the thrill of bungee jumping is to see how close the participant can come to the ground without actually contacting the ground.*

Materials:

- Participant (plastic egg)
- Harness (netting)
- Bungee cord (4 rubber bands)
- Meter stick



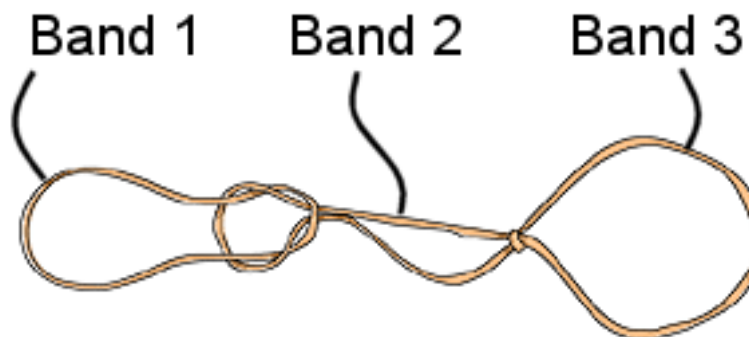
Participant Name (egg): _____

Guardians (Group members): _____

Creating a Safe Bungee Environment:

1. Secure the participant in the harness.
2. Attach the first rubber band by looping it around the harness.
3. Place a participant at the top of the meter stick.

Extending the Bungee Cord:



Developing Your Model:

1. With one rubber band, the participant should “jump”.
2. Carefully measure in centimeters the total elongation of the cord for each jump.
3. Record your measurements in the table to the right.
4. Average the results for each trial.
5. Record the average in the table.
6. Repeat with 2, 3, and 4 rubber bands.
7. Plot the data on your graph (Be sure to label the axes).
8. Make a “spaghetti line” through the points.
9. Select 2 points on your line.
10. Write them below.

(____, ____) and (____, ____)

11. Calculate the slope algebraically.
(Show your work.)

12. Is the slope *positive* or *negative*?

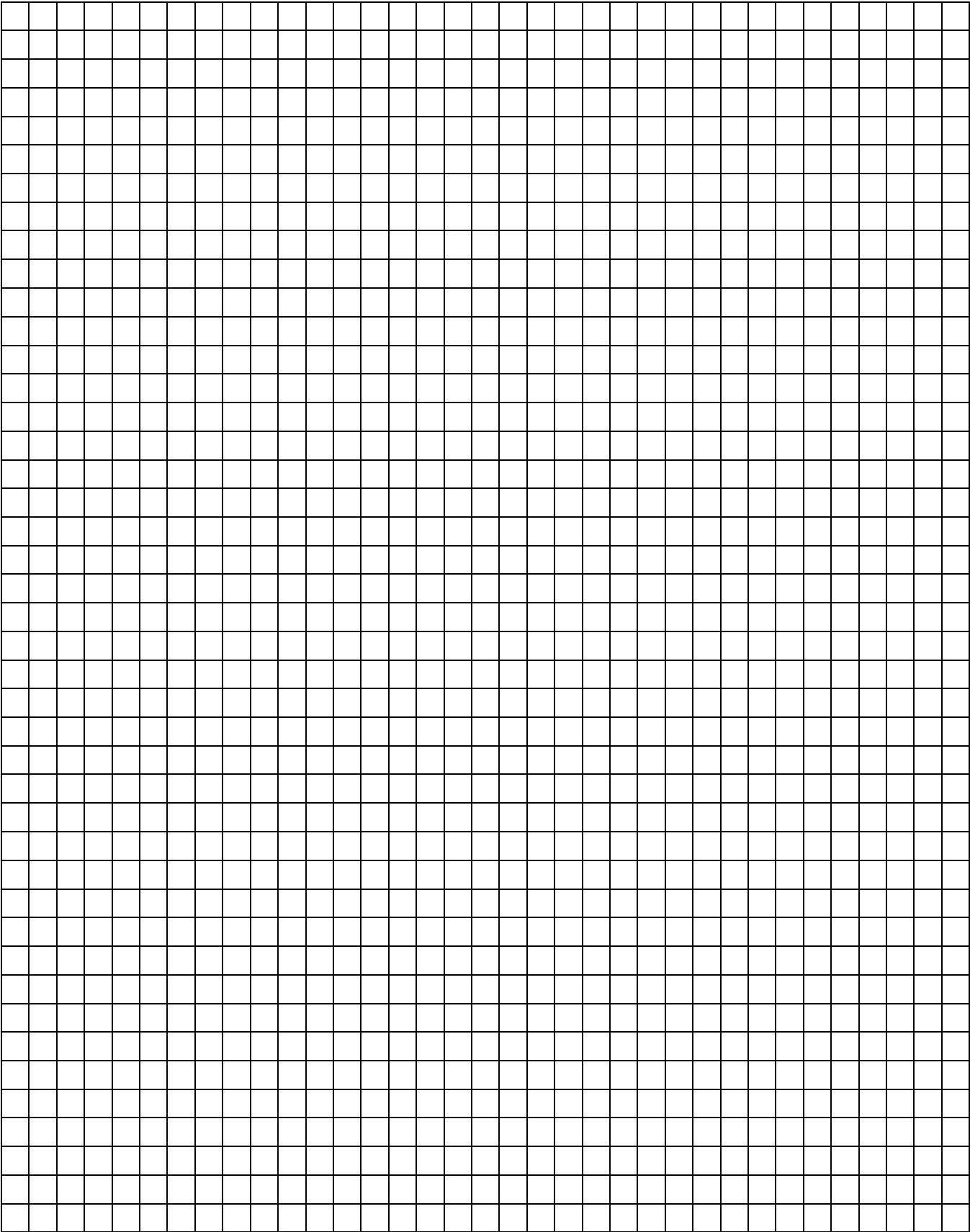
13. What does your answer to question 12 mean in relation to this problem?

14. Write an equation of your line in slope-intercept form.
(Show your work.)

Number of Rubber Bands	Trial	Measurement (in centimeters)
1	1	
	2	
	3	
	Average	
2	1	
	2	
	3	
	Average	
3	1	
	2	
	3	
	Average	
4	1	
	2	
	3	
	Average	

Exploring Your Model:

1. What does the x -value represent?
2. What does the y -value represent?
3. What is the slope of your line?



4. What does the slope of the line represent in relation to this problem?
5. What is the y -intercept of your line?
6. What does your answer to question 5 mean in relation to this problem?
7. Rewrite your equation into standard form.

Testing Your Model:

1. Use your model to determine how many rubber bands are needed to “jump” 250 centimeters.
(Show your work!)
2. Use your model to determine how many centimeters your participant could “jump” with 50 rubber bands.
(Show your work!)



Evaluation Checklist:

- All steps were completed as directed.
- The table has all necessary data entered.
- The data was plotted accurately.
- All DEVELOPING YOUR MODEL questions were answered correctly.
- All EXPLORING YOUR MODEL questions were answered correctly.
- All TESTING YOUR MODEL questions were answered correctly.

Egg Bungee Jump

1. Find a buddy.
2. Get your materials.
3. Complete the activity.



**READ
THE DIRECTIONS!**

Assembling the harness.



Measuring the elongation.



Extending the bungee cord.

