Unit 2 Part 2

BUNGEE BARBIE

Setting: You have been hired to work for the Acme Daredevil Company. This company provides rock-climbing, skydiving, "extreme skiing", and cliff diving adventures to the public. However, to keep up with the market, the board decided to add bungee jumping to its list of offerings.

As part of the first assignment, the board decided that the teams should undertake the task of working out the details of the new venture. The company has several sites planned for bungee jumping and each site is at a different height.

Problem: Initially each group works with just one action figure doll. The task is to determine the ultimate length, or number of rubber bands that can be used with your action figure at any given height and not cause any type of injury or fatality – but that allows your action figure to come as close to the floor as possible (for maximum thrills!!!)

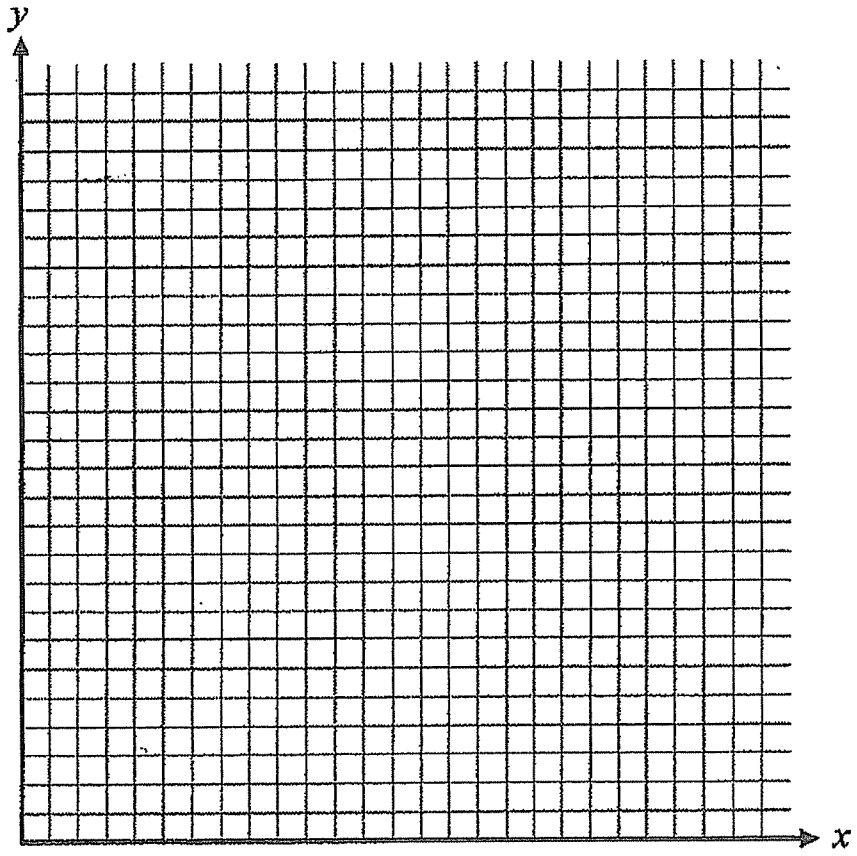
Step 1: COLLECT THE DATA

Use the table below to organize the data you collect. Collect data for your figure by attaching a certain number of rubber bands to the doll's feet and dropping. Run three trials, each time recording the distance that the ball dropped, and then take the average of the trials. Continue adding rubber bands and complete the table.

Number of Rubber Bands	Distance Dropped Trial 1	Distance Dropped Trial 2	Distance Dropped Trial 3	Average
1				
2				
3				
4				
5				
6				

Unit 2 Part 2

Step 2: Graph the data (number of rubber bands, average) in a scatterplot.



Step 3: Draw the line of best fit.

Step 4: Write an equation for your line (Show ALL WORK on your graph. Fill in the blanks with answers)

- **Use two points on the line. _____ and _____**
- **Find the slope. _____**
- **Use your calculator to find the y-intercept. _____**
- **Put your equation in Slope-Intercept form. _____**

Step 5:

If the height of the jump is _____, how many rubber bands will you need? _____

Step 6: Test your conjecture!!!!!

Unit 2 Part 2

INTERPRETING THE DATA – Use *complete sentences* to answer each question.

1. Describe three errors that may have thrown off the results of your experiment.

2. What was the slope of your line of best fit? _____ What does this number physically represent when bungee jumping?

3. What is the y-intercept of your line of best fit? _____ What does this value physically represent when bungee jumping?

4. Circle the appropriate answers. (Be sure you circle two words for each problem.)

If you had a heavier jumper, the (slope , y-intercept) would (increase / decrease).

If you had a shorter jumper, the (slope , y-intercept) would (increase / decrease).

PREDICTING WITH YOUR DATA: SHOW ALL WORK!!!

Rewrite your prediction equation from Step 4 _____and use it to answer these questions.

5. How far should your figure need to be above the ground if there were 18 rubber bands attached to it?

6. How far should your figure need to be above ground if there were 100 rubber bands attached to it?

7. How many rubber bands would be needed to drop your figure from 50 feet, 5 inches?

8. How many rubber bands would be needed to drop your figure from the top of the Statue of Liberty, which is 93 meters tall? (Hint: 1 meter is about 39.4 inches.)