

Writing Equations from Data (Bounce Height Experiment)

Name: _____ Date: _____

LEARNING OBJECTIVE

The student will collect real data and write a linear equation that models the relationship between two variables.

MATERIALS NEEDED

- a bouncy ball or tennis ball
- measuring tape or ruler (yardstick works well)
- graph paper
- pencil
- paper for a data table

HANDS-ON ACTIVITY

1. Draw a data table with 2 columns: 'Drop Height (inches)' and 'Bounce Height (inches).'
2. Drop the ball from 3 different heights (e.g., 12, 24, and 36 inches) and measure/record how high it bounces each time.
3. Plot your 3 data points on graph paper with Drop Height on the x-axis and Bounce Height on the y-axis, and draw a best-fit straight line through (or near) the points.
4. Use two of your data points to calculate the slope of your best-fit line, then use the slope and one point to determine the y-intercept.
5. Write your final linear equation in the form $y = mx + b$ to model the relationship between drop height and bounce height.

QUESTIONS

1. List your 3 recorded data points (drop height, bounce height).
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2. What is the slope of your line, and what does it mean in this situation?
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3. Write your final equation in $y = mx + b$ form.
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4. Using your equation, predict the bounce height if the ball were dropped from 48 inches.
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