

Real-World Linear Model Project: Planning a Party Budget

Name: _____ Date: _____

LEARNING OBJECTIVE

The student will design, graph, and present a real-world linear model representing cost as a function of a variable.

MATERIALS NEEDED

- poster board or large paper
- graph paper
- ruler
- markers or colored pencils
- calculator (optional)

HANDS-ON ACTIVITY

1. Choose a real scenario to model, such as: 'A party costs \$50 to book the venue plus \$8 per guest.' Write this as a linear equation, $y = 8x + 50$, where x is the number of guests and y is total cost.
2. Build a table of values by calculating the total cost for 5 different guest counts (e.g., 5, 10, 15, 20, 25 guests), showing your arithmetic for each.
3. Graph your equation on graph paper using your table of values, labeling both axes clearly with units (guests and dollars).
4. On poster board, present your model: write the equation, show the graph, identify the slope and y-intercept, and explain in 2-3 sentences what each represents in real-world terms (cost per guest and fixed venue cost).
5. Add one 'what-if' question to your poster (e.g., 'How many guests can attend on a \$200 budget?'), solve it by substituting into your equation, and show the solution on the poster.

QUESTIONS

1. What is the slope and y-intercept of your equation, and what does each represent in real life?
 2. Using your equation, what is the total cost for 20 guests?
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3. Solve your poster's 'what-if' question and show your work.

4. Why is a linear equation a good way to model a situation like party costs?
