

Not Just Your Favorite Graphs: Representing Data with Bar Graphs

1. What are the features of a bar graph?
2. Bar graphs may represent categorical data where the answer to the question is a word (e.g., What kind of calculator do you own: basic, fraction, scientific, or graphing?), or numerical data where the answer to the question is a number (e.g., How many calculators do you own?).

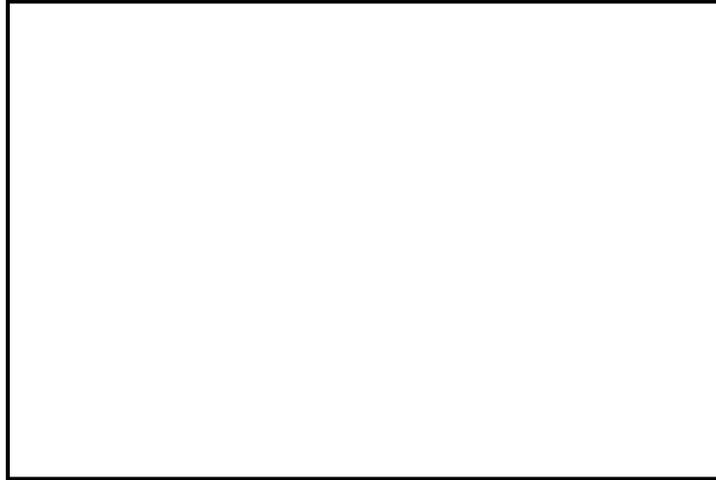
List two questions that you will use to collect data that would be appropriate to represent with a bar graph. Be sure you have one question to collect categorical data and one question to collect numerical data.

Question 1 (Categorical Data):

Question 2 (Numerical Data):

3. Bar graphs may show:
 - a. Case Value Plot: cases with case values (i.e., How many calculators do you own? provides data as a person's name and the number of calculators owned; for example, Susan owns 4 calculators and Ella owns 2 calculators, etc.); or
 - b. Frequency Bar Graph: categories with frequencies (i.e., What kind of calculator do you own? provides data as a kind of calculator and the number of people who own each kind; for example, basic calculators are owned by 12 people, graphing calculators are owned by 7 people, etc.).
 - c. Some questions may provide data that can be represented by either a case value plot or a frequency bar graph. The question, "How many calculators do you own?" can be graphed as a case value plot, for example, Susan owns 4 calculators, etc.; and the same data can be organized for a frequency bar graph, for example, the number of calculators owned (categories) and the number of people who own a certain number of calculators (frequencies) such as 2 calculators are owned by each of 11 people.
 - d. Some questions provide data that may be represented in a frequency bar graph, but do not make sense for a case value plot. For example, the question, "What kind of calculator do you own?" only makes sense for a frequency bar graph (the kind of calculator for categories and the number of each kind owned as frequencies). It does not make sense to have a bar to represent Susan (case) owns a basic calculator (category).

- b. Print the TI-73 Explorer screen showing the bar graph; or sketch your bar graph below. Identify which question and data are represented in this bar graph.



6. Write at least two statements that make sense to conclude about the data represented in the bar graph.

7. Find the mean, median, mode and range for each of your bar graphs (if possible), and explain how each describes the data. Determine which statistics make sense to describe the data.

Question 1 (Categorical Data):

a. Case Value Plot

mean	_____	How does this describe the data? Does it make sense?
median	_____	How does this describe the data? Does it make sense?
mode	_____	How does this describe the data? Does it make sense?
range	_____	How does this describe the data? Does it make sense?

b. Frequency Bar Graph

mean	_____	How does this describe the data? Does it make sense?
median	_____	How does this describe the data? Does it make sense?
mode	_____	How does this describe the data? Does it make sense?
range	_____	How does this describe the data? Does it make sense?

Question 2 (Numerical Data):

a. Case Value Plot

mean	_____	How does this describe the data? Does it make sense?
median	_____	How does this describe the data? Does it make sense?
mode	_____	How does this describe the data? Does it make sense?
range	_____	How does this describe the data? Does it make sense?

b. Frequency Bar Graph

mean	_____	How does this describe the data? Does it make sense?
median	_____	How does this describe the data? Does it make sense?
mode	_____	How does this describe the data? Does it make sense?
range	_____	How does this describe the data? Does it make sense?

8. Write a paragraph (7-10 sentences) that explains your current thinking about appropriate ways to represent data using bar graphs (case value plots and frequency bar graphs). Include something about what you know, and what is still confusing, or questions you still have about bar graphs.