

Sample Problems on Bar Graph Scales

1. Employee Salaries

The following table illustrates the average employee salary at Smith, Inc. for each of the last fifteen years.

Year	Salary (in thousands)
1983	32.5
1984	33.25
1985	33.35
1986	37.4
1987	32
1988	35.8
1989	37.8
1990	34.48
1991	40
1992	39.5
1993	36.1
1994	35.4
1995	37.5
1996	38
1997	36.9

Mrs. Smith, the general manager of Smith, Inc., has been asked to submit to the local newspaper a bar graph illustrating the average employee salary in her company for each of the last 15 years. If you were Mrs. Smith, how would you create the vertical scale of the bar graph so as to maximize the appearance of increasing average salary? How would you create the bar graph so as to emphasize the company's stability? If you were an outside observer, how would you create the bar graph so as to present an accurate representation of the changing average salaries?

2. Basketball Scores

Your basketball team, the Jaguars, has been asked to create a bar graph illustrating your team's scores for each of its last ten games. The following table illustrates these scores.

Game	Score
1	67
2	72
3	71
4	68
5	70
6	65
7	75
8	78
9	77
10	80

Using the vertical scale, set the slider to the highest setting and then to the lowest. What does the data look like at both settings? How does this change your perception of the Jaguars' scoring? What do you think is the best setting for the vertical scale? Why?

3. Quality Motor Company

Quality Motor Company (QMC) is claiming that their cars have increased in quality more significantly than the cars of their competitors. They plan to use bar graphs showing the average longevity of cars from each company, as well as their own, for each of the last 12 years. Given the following data for the company, how should QMC scale its bar graph so as to emphasize increase in quality? In general, how should they scale the bar graphs for their competitors (larger or smaller scale)? Is this an accurate comparison of the companies? If not, how could you create one?

Year	Avg. # Years Until Repairs are Needed
1986	2.6
1987	2.3
1988	2.5
1989	2.5
1990	2.8
1991	1.9
1992	3.0
1993	3.1
1994	2.8
1995	3.2
1996	3.6
1997	3.5

4. Mall Safety

You are the manager of the local mall, and you want to express to the public the safety of your mall. The following data has been collected during the past year:

Month	# Crimes Reported
Jan.	2
Feb.	1
Mar.	1
Apr.	3
May	4
June	5
July	5
Aug.	4
Sept.	1
Oct.	2
Nov.	1
Dec.	3

What is the best way to present this data, using a bar graph (remembering that your goal is to emphasize the mall's safety)? Possible methods of manipulating the bar graph include changing its scale and the number of months shown (i.e. show only every 3rd month, etc.).