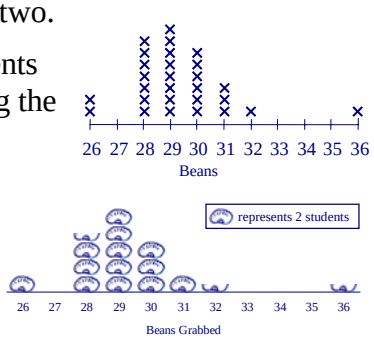
TAKE IT TO THE MAT

A NEWSLETTER ADDRESSING THE FINER POINTS OF MATHEMATICS INSTRUCTION

Southern Nevada Regional Professional Development Program
January 2004 — Elementary School Edition
rpdp.ccsd.net

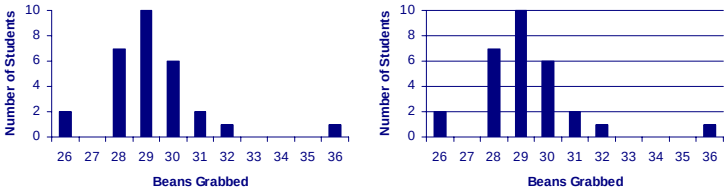
Happy New Year! In the last couple of editions of *Take It to the MAT*, we examined two methods to present data in a graphical format: the line plot and the pictograph. In this issue, we will consider the bar graph, a relative of the other two.

Once again, we'll use the data obtained when students grabbed a handful of beans. The table summarizing the data is given along with a line plot and pictograph. Both of these types of graphs require us to count symbols to determine how many students grabbed a certain number of beans. A bar graph allows us to see quickly the frequency a particular number of beans were drawn.

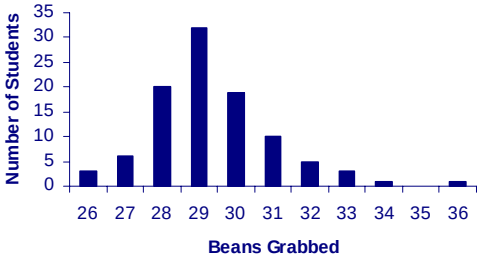


Beans Grabbed	Number of Students
26	2
27	0
28	7
29	10
30	6
31	2
32	1
33	0
34	0
35	0
36	1

Notice that a bar graph has a vertical scale. We need some way to determine frequency without counting symbols. The vertical scale will typically begin at zero and is marked off in equally-sized increments. In the graphs above, the increment is 2. It could be one, or five, or some number that makes the scale of the graph easy to read. The addition of gridlines, as in the right graph, assists in reading the frequency. Gridlines should be used judiciously, as too many tend to clutter the graph.



In the case where we had several classes grab beans, a bar graph is even more useful. There are one hundred data organized in the table at right, which makes a line plot of it next to useless. A pictograph could be made (see December 2003 issue), but it takes a lot of time to draw little pictures. The bar graph is the solution.



Beans Grabbed	Number of Students
26	3
27	6
28	20
29	32
30	19
31	10
32	5
33	3
34	1
35	0
36	1

How many students grabbed 30 beans? From the graph, it's about 20, perhaps 19 or 18. But, the exact number is not really the big idea here. The purpose of the graph is to get a quick idea as to how the data are distributed—where it's centered, how it's spread out, what its shape is, and if there are any unusual observations. The distribution clearly has some symmetry, centered around 29, with most values ranging from 26 beans to 34 beans. There was one student set apart with 36 beans.

What is unusual about the data? Does anything surprise you? What other questions does this information prompt you to ask?