

Understanding Math

Representing Data - Graphically

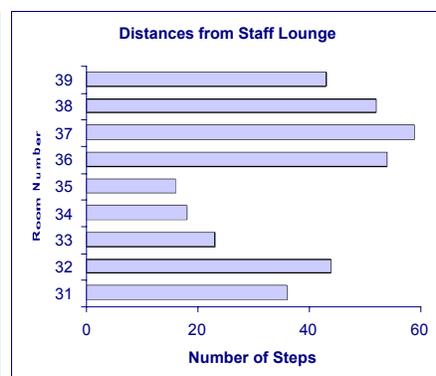
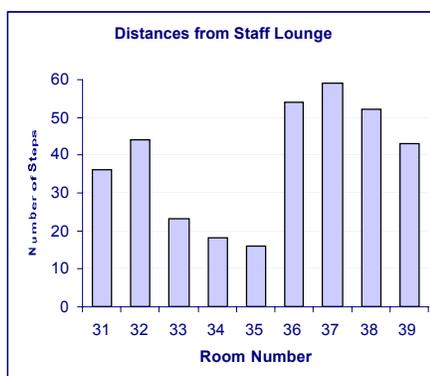
Southern Nevada Regional Professional Development Program

At some schools, teachers like their classrooms to be close to the restroom. Others prefer rooms close to the mailroom. At John and Jane Doe Elementary School, teachers like to be near the staff lounge. Because of the desire to be in proximity to the lounge, a study was commissioned to determine which rooms are closest to the lounge and, therefore, most advantageous. In this issue of *Understanding Math*, we'll look at a portion of that study and how the data were represented graphically.

Rather than measure the distance in feet using measuring tapes and dealing with crooked paths, it was decided to measure the distance in steps—specifically, the principal's steps. A single person is chosen so one has a common unit of measure. For now, we will only consider the distances in steps from the lounge to the 9 third grade classrooms. The data are listed in the table at right.

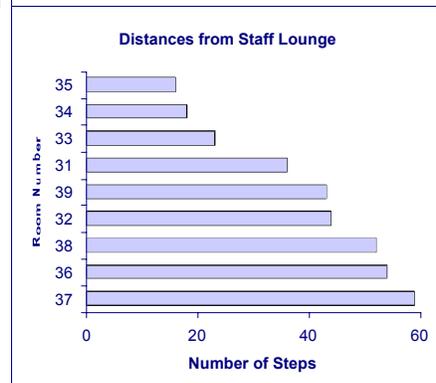
Room	Number of Steps
31	36
32	44
33	23
34	18
35	16
36	54
37	59
38	52
39	43

There is quite a wide range of distances for the third grade rooms. The nearest is a mere 16 steps away; the farthest is 59 steps. To get a better picture of what the distances are, we can make a bar graph with each bar's length representing the distance in steps. Both horizontal and vertical bar graphs are shown at right. It's important that kids be able to read and interpret both.



Which room is the best to have? The worst? Are there any groups of rooms where it wouldn't matter?

There are several things to note. First, *room number* is not really a number, it is a name made with digits, similar to phone numbers or ID numbers. That being the case, there is no set order as to how the distances associated with the rooms must be displayed. In the bar graph at right, the distances have been sorted from least to greatest and placed on the bar graph in order.



Regardless of the display, it's clear that Room 35 is most desirable and Room 37 is least desirable. What isn't as apparent from the first two graphs, but is in the third graph where we sorted the distances, is that the difference in distance between the lounge and Rooms 32 and 39 is negligible. If one were in Room 32 and a change in seniority allowed a move to Room 39, it probably wouldn't be worth packing up one's stuff and lugging it across the campus just to get one step closer to the lounge.

Finally, this type of bar graph is sometimes called a *case graph* or *case value plot*. It displays a measurement for each *case* in the data. Here the cases are the rooms. *Case value plot* is not a term one finds in many texts; it is presented here as a point of interest.