

CONSTRUCTING A STEM AND LEAF DISPLAY

The table below contains the weights of 53 male statistics students. To construct a stem and leaf display for these data, first note that, when counting by tens, the weights range from the 130s to the 240s. Arrange a column of numbers, the STEMS, beginning with 13 (representing the weights in the 130s) and ending with 24 (to include the weight that is in the 240s). Draw a vertical line separating the stems, which represent multiples of 10, from the space to be occupied by the LEAVES, which represent multiples of 1.

Next, enter each raw score into the STEM AND LEAF DISPLAY. Thus, a weight of 160 would be entered by placing a 0 next the 16 STEM. 0 is the LEAF on the 16 STEM. Next, the weight of 193 is entered into the display by placing a 3 next to the 19 STEM. And for the weight of 226, a 6 is placed next to the 22 STEM. Continue this process until the entire display is created.

Table 3.1
CONSTRUCTING STEM AND LEAF DISPLAY FROM WEIGHTS OF MALE STATISTICS STUDENTS

RAW SCORES				STEMS	STEM AND LEAF DISPLAY	
160	165	135	175	13	3	5
193	168	245	165	14	5	
226	169	170	185	15	2	7 1 7 8 0 2 0 2 6 9 8 2 6 4 7 6
152	160	156	154	16	0	3 5 8 9 0 0 0 6 5 5 5
180	170	160	179	17	2	0 0 0 2 5 9
205	150	225	165	18	0	0 5
163	152	190	206	19	3	0 0 0
157	160	159	165	20	5	6
151	190	172	157	21		
157	150	190	156	22	6	0 5
220	133	166	135	23		
145	180	158		24	5	
158	152	152				
172	170	156				

Note: The resulting display, if rotated to the left, produces a shape exactly the same as our histogram of the same data (Figure 3.1).

Comment:

Notice that the weight data have been sorted by their STEMS. All weights in the 130s are grouped together as are those in the 140s, 150s, and so on. The shape of the resulting display, moreover, is essentially identical to that produced by the histogram for this data. Rotating the image counterclockwise will show this clearly. This type of display is ideal for this type of data since it retains the identity of each individual raw value. You can also create back-to-back displays to compare two groups, say compare the weights of male statistics students with those of female statistics students.

Note:

It is not necessary to have your raw data sorted low to high before proceeding. However, if you did do that, then you would be able to arrange your LEAVES in ascending order as well from left to right in the display area.

Stem values are not limited to units of 10. For example, if you were plotting incomes and working with figures such as \$45,887, it could be displayed on a STEM of 45 with a LEAF of 887 (when the LEAVES such as the latter have more than one digit, it is customary to separate them with commas). Another example, an SAT score of 743 could be displayed as a 43 LEAF on a 7 STEM.