

Box-and-Whisker Plots

Background Information:

Students will need to know how to enter data into LISTS function of the graphing calculator.

Materials and Equipment:

- Graphing calculator and view screen
 - Overhead projector
 - Each student will need:
graphing calculator and handouts
-

Notes to Teacher:

- Students may work alone or in pairs on this activity.
 - The time allotted for this activity varies depending on the ability level of the students.
-

Activity Sheet: Box-and-Whisker Plots

Box-and-Whiskers 1:

Manually, make a box and whiskers plot of the scores on this Statistics exam.

85 96 87 54 90 92

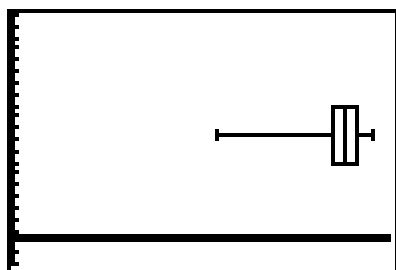
Now enter the scores into L_1 .

L1	L2	L3
85 96 87 54 90 92	-----	-----
L1(7)=		

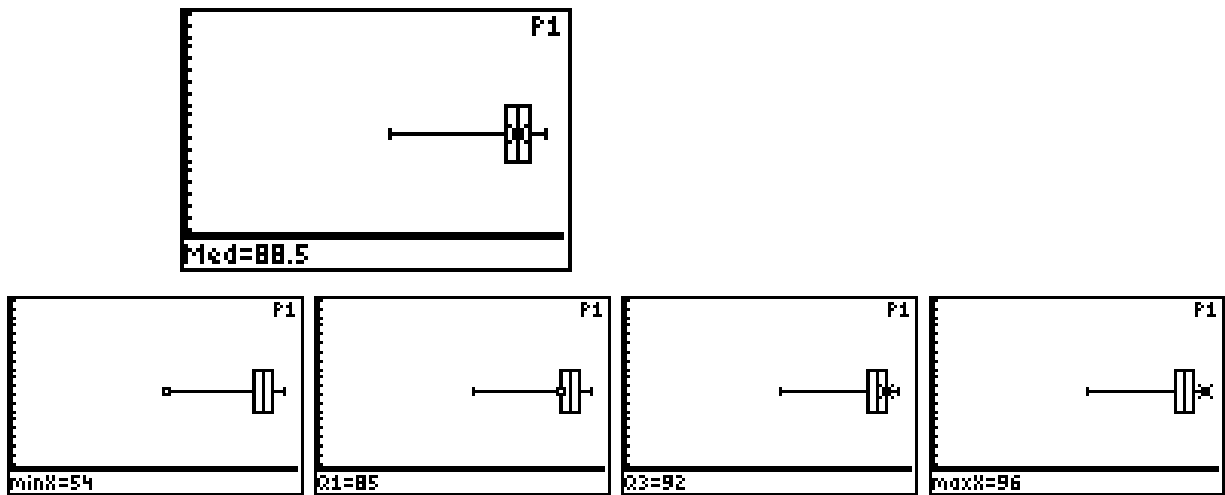
Choose an appropriate Window.

WINDOW FORMAT
Xmin=0
Xmax=100
Xscl=1
Ymin=-2
Ymax=20
Yscl=1

Results as follows:



Tracing:



Try different windows. See what happens.

Box-and-Whiskers 2 (Stem-and-Leaf Plot):

The following scores were obtained by 50 students on a final exam in Statistics.
Create a Stem-and-Leaf Plot for the data.

51	46	31	35	37	51	56	51	43	48	52
33	42	37	27	57	65	36	37	55	42	43
33	49	31	46	50	57	52	35	38	47	42
58	38	47	54	39	51	68	36	48	36	47
32	51	50	44	32	36					

Using your calculator, make a box and whiskers plot of the scores. Does the Stem-and-Leaf plot help the process?

Sketch your Box-and-Whisker Plot identifying the Min, Q1, Med, Q2, and Max.

Box-and-Whiskers 3:

Scores on the first physics test are as follows:

Class 1

Student	A	B	C	D	E	F	G	H	I	J
Score	55	64	83	92	100	77	86	95	80	98

Class 2:

Student	A	B	C	D	E	F	G	H	I
Score	52	79	71	100	100	76	100	78	76

Make a box-and-whiskers plot of each set of data on the same graphics screen.

You will have to use two different LISTS and two different STAT PLOTS.

Sketch each Box-and-Whisker identifying the Min, Q1, Med, Q2, and Max of each.

Which class did better?

What is the average (mean or median?) score for each class?

(When you prompt the calculator to do 1-variable statistics, you MUST follow the prompt with the “place” you stored the statistics, i.e. $L_{??}$)

Does this change your opinion about which class did better?

When statistics are “quoted”, what words can be deceiving?

Can the wording affect how one perceives the overall picture of “which class did better?”

Box-and-Whiskers 4:

An experiment found a significant difference between boys and girls pertaining to their ability to identify objects held in their left hand, which are controlled by the right side of their brains, versus their right hands, which are controlled by the left side of their brains.

The test involved 20 small objects, which participants were not allowed to see. First they held 10 of the objects one by one in their left hands and guessed what they were. Then they held the other 10 objects one by one in their right hands and guessed what they were.

Correct Guesses

Women Left	Women Right	Men Left	Men Right
8	4	7	12
9	1	8	6
12	8	7	12
11	12	5	12
10	11	7	7
8	11	8	11
12	13	11	12
7	12	4	8
9	11	10	12
11	12	14	11

Make a box-and-whiskers plot that will allow you to compare the data.