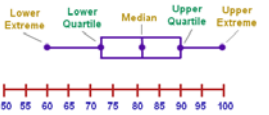
Box-and-Whisker Plots

Box-and-Whisker Plots are a handy way to display data broken into four quartiles, each with an equal number of data values. It shows where the middle of the data lies.



Ex 1:

Draw a box-and whisker plot for the following data set.

Shoe Size

5.5 9 10 5 6 10 7.5
6.5 8.5 8.5

Step1: Put data in ascending order (lowest to highest numbers).

5 5.5 6 6.5 7.5 8.5 8.5 9 10 10

Step2: Find the median (mid-point).

5 5.5 6 6.5 7.5 8.5 8.5 9 10 10

There is no middle number. You must add both middle numbers and divide by 2.

5 5.5 6 6.5 7.5 8.5 8.5 9 10 10

Ok to use calculator!

$(7.5 + 8.5) \div 2$

$16 \div 2$

Median = 8

5 5.5 6 6.5 7.5 8 8.5 8.5 9 10 10

Step3: Find the median of the left side of data set.

5 5.5 6 6.5 7.5 8 8.5 8.5 9 10 10

Median of the LEFT set?

5 5.5 6 6.5 7.5
5 5.5 6 6.5 7.5

Step4: Find the median of the right side of data set.

5 5.5 6 6.5 7.5 8 8.5 8.5 9 10 10

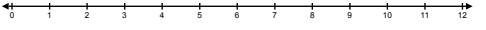
Median of the RIGHT set?

8.5 8.5 9 10 10
8.5 8.5 9 10 10

5 5.5 6 6.5 7.5 8 8.5 8.5 9 10 10

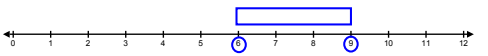
You should have 3 medians.

Step5: Draw a number line.

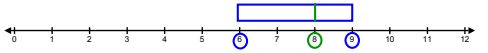


Step6: Draw box with end points at 6 & 9.

5 5.5 6 6.5 7.5 8 8.5 8.5 9 10 10

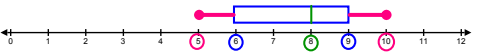


Step7: Cut box by placing a line at the center median 8.



Step8: Plot the lower extreme & upper extreme and connect line to the box .

5 5.5 6 6.5 7.5 8 8.5 8.5 9 10 10



ANSWER

Checks for Example 1:

1) Goals in a Hockey Game

3 9 7 7 9 4 5 8
6 5

3 4 5 5 6 7 7 8 9 9

3 4 5 5 6 7 7 8 9 9

$(6 + 7) \div 2$

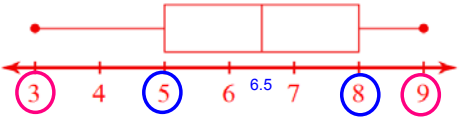
$13 \div 2$

Median = 6.5

3 4 5 5 6 6.5 7 7 8 9 9

3 4 5 5 6 6.5 7 7 8 9 9

ANSWER



2) Test Scores

51 48 40 35 42 47 47
52 50

35 40 42 47 47 48 50 51 52

35 40 42 47 47 48 50 51 52

35 40 42 47 47 48 50 51 52

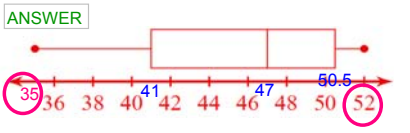
$\frac{(40 + 42)}{2}$ $\frac{(50 + 51)}{2}$

41 50.5

35 40 41 42 47 47 48 50 50.5 51 52

35 40 41 42 47 47 48 50 50.5 51 52

ANSWER



3) Academy Awards

Movie	# Awards
Cavalcade	3
Lawrence of Arabia	7
The Silence of the Lambs	5
American Beauty	5
Kramer vs. Kramer	5
Wings	2
Casablanca	3
Marty	4
Rain Man	4

2 3 3 4 4 5 5 5 7

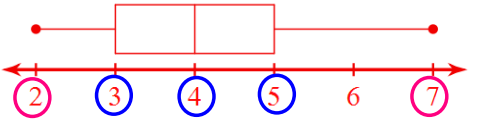
2 3 3 4 4 5 5 5 7

$\frac{(3 + 3)}{2}$ $\frac{(5 + 5)}{2}$

2 3 3 3 4 4 5 5 5 5 7

2 3 3 3 4 4 5 5 5 5 7

ANSWER



4) Average Lifespan

Animal	Years
Rabbit	9
Blackbird	18
Eagle	55
Muscrat	6
Lion	35

Animal	Years
Redhead Duck	17
Gouldian finch	6
American Toad	15
Norwegian Rat	4
Chimpanzee	40