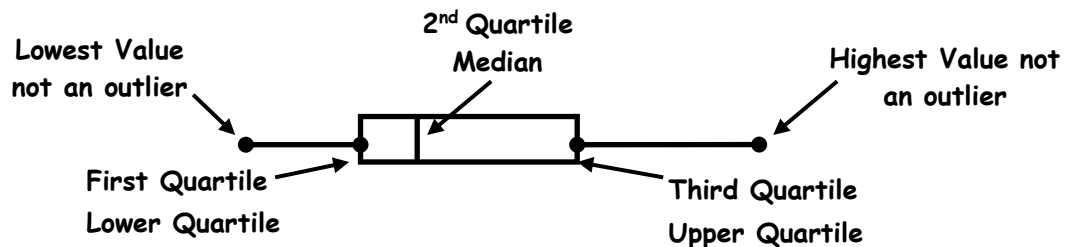


Recipe for Success: Box Plots

Box Plot or Box and Whisker Plot: A graphical display of data along a number line, dividing the data into four parts called quartiles and identifying the lowest and highest data value along with the **median**.



1. Input the Data

- Press **STAT EDIT ENTER**
(Input the data into column L_1)

2. Input the Frequency

(Input the Frequency into column L_2)

3. View the 5 Number Summary

- Press **STAT→CALC ENTER** (1-Var Stats)
List: Press **2nd**; Press **1** so that L_1 is selected
- Arrow down to **FreqList:**
Note: If the frequency is 1, **FreqList:** should be **blank**
Note: If the frequency is > 1 , L_2 should be selected
Press 2nd; Press **2** so that **FreqList:** L_2

- Min = smallest data point
- $Q_1 = 1^{\text{st}}$ quartile
- Med = Median/ 2^{nd} quartile
- $Q_3 = 3^{\text{rd}}$ quartile
- Max = largest data point

4. Other information

- Press **Enter twice**
- \bar{x} = sample mean
- n = sample size
- s_x = sample standard deviation
- σ_x = population standard deviation

5. Viewing the Box Plot

- Press **2nd STAT PLOT→ Enter→**(turn stat Plot on)
- Press **↓→→Enter** (selects the box plot)
- **XList:** Press **2nd** and **1** for (L_1)
- **FreqList:** **Blank** or press **2nd** and **2** for (L_2)

6. Calculate the IQR

Interquartile Range

- **Upper Quartile - Lower Quartile:** $Q_3 - Q_1$

7. Calculate the Fences

- **Lower Fence:** $Q_1 - 1.5 \times (\text{IQR})$
- **Upper Fence:** $Q_3 + 1.5 \times (\text{IQR})$

8. Identify the Outliers

- Data points which lie outside of the fences
 - $X < Q_1 - 1.5 \times (\text{IQR})$
 - $X > Q_3 + 1.5 \times (\text{IQR})$

Recipe for Success: Stem Plot or Stem and Leaf

Stem Plot or Box and Whisker Plot: A graphical display in which the one's digit comprise the leaves and the remainder of the number comprise the stem. The numbers are listed in order from least to greatest. The advantage to this type of data display is that it maintains all of the original data values and it provides an idea of center shape, spread and any unusual features in a data set. Unfortunately, this type of graph becomes unwieldy with large data sets.

1. Input the Data

- Press **STAT EDIT ENTER**
(Input the data into column L_1)

2. Place the data in order

(Least to Greatest)

- Press **2nd List → Highlight OPS**
↓ 1:Sort A(and then Press **Enter**
Press **2nd L₁ "column number"** & Press **Enter**

3. Create a Legend

Stem | Leaves

Remember: the leaves are the ones digits and the stems are the rest of the number

4. Draw the Stemplot

Remember: leaves can repeat, stems do not.

- Draw a T
- Record the stems on the left
- Record the leaves which correspond to a stem on the right

Recipe for Success: Histogram

Histogram: A graphical display of a frequency distribution whose class/bar widths have a height that is proportional to the frequency of the values in that class. Histograms are useful for large data sets and they provide an idea of center, shape and spread and show unusual features of the data sets. However, individual data values are not included in histogram.

1. Input the Data

- Press **STAT EDIT ENTER**
(Input the data into column L_1)
- If Applicable, Input Frequency into **column L_2**

2. Draw the Graph on the Calculator

(Least to Greatest)

- Press **2nd STATPLOT** and Press **Enter**
- **Highlight ON** by pressing **Enter**
- **→Highlight Histogram Image** and Press **Enter**
- **↓Xlist**
- Press **2nd L₁ "column number"** & Press **Enter**
- **↓Freq:** If no frequency entered, **Input 1**
- If Frequency entered, **Press 2nd** followed by **L₂**

3. Create the Window

- **Press Window**
- **↓Xmin** Enter a value one bin width less than the data
- **↓Xmax** Enter a value one bin width greater than the data
- **↓Xscl** Enter the Bin Width

4. Draw the Graph

- Press **Graph**
- Label **Both Axes** and Title the Graph