

Population – *group of data or points that you want to make a prediction about*

Sample – *a portion of the population*

Census – *a survey of the people in a population*

Taking a sample allows predictions of the entire population. The greater size of the sample, the more accurate the results will be for the entire population.

Three types of data:

- Qualitative – data consisting of descriptions such as names; such as red, white and blue.
- Discrete – data consisting of exact numerical values; such as 2, 4, 16
- Continuous – data consisting of numerical values in cases where it is not possible to list all the outcomes; such as measurements involving time, weight, length.
 - a. When using continuous data we often use ranges of values; such as 0-4, 5-8, 9-12 etc.

Lists of data are hard to read and recognize general patterns. Tables, diagrams and charts can be made to organize data lists.

- Tally charts and Frequency tables
- Stem and leaf diagrams
- Bar Charts
- Line Graphs
- Pictograms
- Pie Charts
- Histograms
- Box and Whisker Plots

Histograms

Histograms are often mistaken for bar graphs. They look like bar graphs but a histogram graphs the number of points that occur.

Specifics:

- The width of each bar is equal to the class width on the frequency table.
- X-axis is always the topic of the data; such as mass, height...
- Y-axis is always the frequency.

The following data represents the height in cm of a group of students.

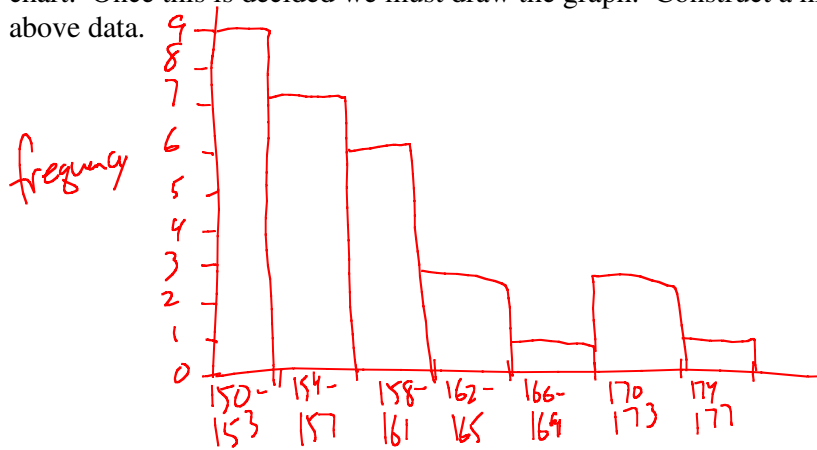
156	172	168	153	170	160	160	156	172	<u>174</u>
150	160	163	152	157	158	162	154	163	159
157	160	153	154	150	<u>150</u>	152	152	154	151

The choice of class interval is made so there are about ten classes. The objective is to show the distribution of the data as clearly as possible.

	tally	frequency		tally	frequency
150-153		4	162-165		3
154-157		4	166-169		1
158-161		4	170-173		3

174-177 1

To draw a histogram we must decide on an appropriate interval and construct a tally chart. Once this is decided we must draw the graph. Construct a histogram for the above data.



Histograms from frequency charts.

Create a tally chart, a frequency table, a histogram, and a frequency plot for the weights of the following students.

166	162	158	163	172	160	170	166	162	174
160	150	173	172	148	158	152	154	153	149
149	150	163	164	150	150	162	149	164	161

Heights	Tally	Frequency
148-150		5
151-153		2
154-156		1
157-159		2
160-162		5
163-165		4
166-168		2
169-171		1
172-174		4

