

Analyzing and Describing Data

Statisticians collect information about specific groups. Any group of objects or people is a population. When a population is too large to survey, statisticians sample part of it to find out the characteristics of the whole.

Data that is collected can be put into two different categories.

Quality
Description

<u>Qualitative Data</u>	<u>Quantitative Data</u>
Hair Color	Age
Texture	Weight
Attitude	Speed
Zip Code	Height
Phone Number	Area
Opinion	Time
Ice Cream Flavor	Temperature
Address	Cost
Gender	Shoe Size
Race	Elevation

Quantity
Numbers
Amount
Measurement

Qualitative Data - data that is descriptive

Quantitative Data - data that is measurable

Examples:

1. The carpet is blue and white speckled, soft, and covered with dog hair.

Qualitative

or

Quantitative

2. The lamp is 6 feet tall, costs \$25 and uses 60 watt light bulbs.

Qualitative

or

Quantitative

3. Jenny's address is 123 North Avenue, Rochester NY 14624 and her phone number is 314-7521.

Qualitative

or

Quantitative

4. The time it takes Mr. Harper's students to finish a test.

Qualitative

or

Quantitative

5. The opinions of students regarding the use of iPods in the hallways.

Qualitative

or

Quantitative

Once the statisticians collect the data, they must figure out if the data they collected is accurate and reliable. If data is **biased, or unfair**, the data might suggest things that are untrue.

Examples:

1. A survey in the school is being conducted to see what the student's favorite sport is. The statisticians conducting the survey decide to ask the members of the varsity football team.

Biased or Unbiased

Why? Because football players will choose football

2. The mayor of Rochester conducts a poll to see if the people of Rochester approves of the job he is doing. His secretary surveys every 5th person that appears in the Rochester phone book.

Biased or Unbiased

Why? Because this is a random group

3. A school survey is being conducted to determine the theme for the school dance. The students who will be asked are the members of Mrs. Creegan's Spanish class.

Biased or Unbiased

Why? Because it would be best to ask students from random classes

Once the data is analyzed, conclusions can be drawn. Sometimes, there will be a relationship between the data. If change in one set of data **causes** a change in another set of data then the data has a **causal relationship**.

Examples:

1. The distance traveled and the time spent driving.

Causal or Not Causal

2. The age of a child and the hair color of the child

Causal or Not Causal

3. The faster the pace of the runner, the quicker the runner will finish.

Causal or Not Causal

4. The number of students enrolled in a high school and the number of teachers employed.

Causal or Not Causal