



THE SCIENTIFIC METHOD

PART 3 - DATA

DATA

- **Data**: information gathered during an experiment (dependent variable)
 - Usually displayed in tables, charts, and graphs



TYPES OF DATA

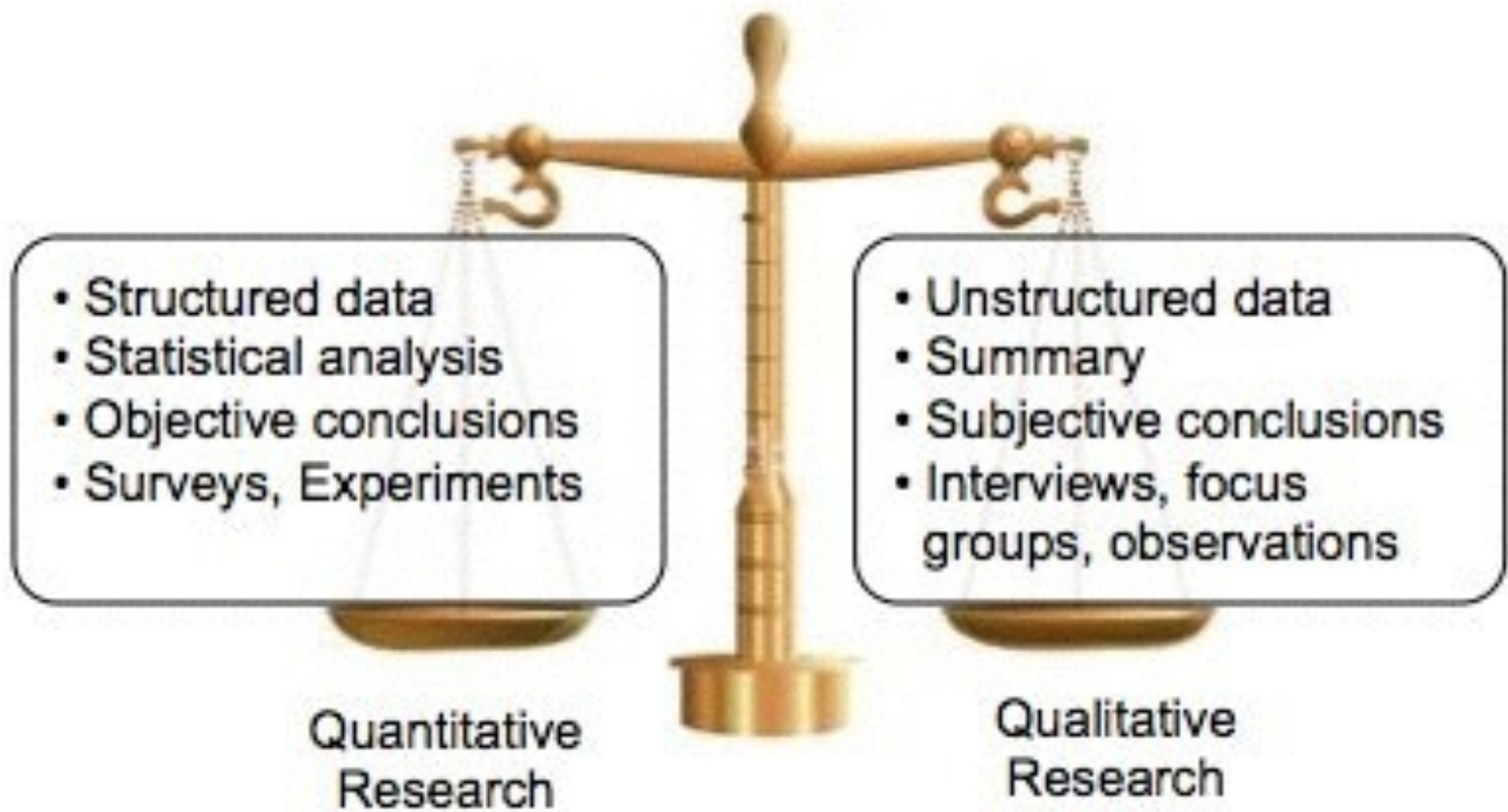
- **Quantitative Data:**
 - Deals with Quantity
 - Data can be measured or written down with numbers
 - Examples:
 - scores on achievement tests
 - number of hours of study
 - weight of a subject



QUALITATIVE DATA:

- Deals with quality/ descriptions
- Can't be expressed as a number
- Can be observed, but not measured
- Examples:
 - Smells
 - Tastes
 - Appearance

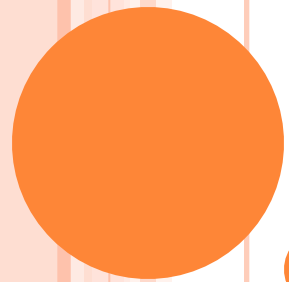




WHAT MAKES GOOD DATA?

- Honest – report everything!
- **Large Sample Size** - more representative of the population
- **Multiple Trials** – increases accuracy of results





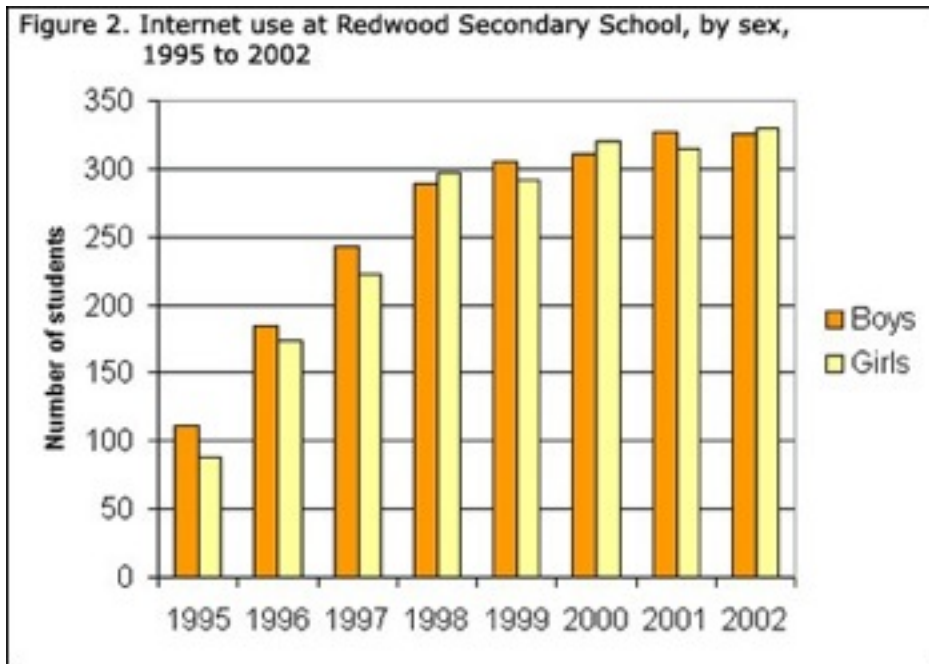
DISPLAYING DATA



WHICH OF THESE IS EASIEST TO READ?

The graph?

Or the data?

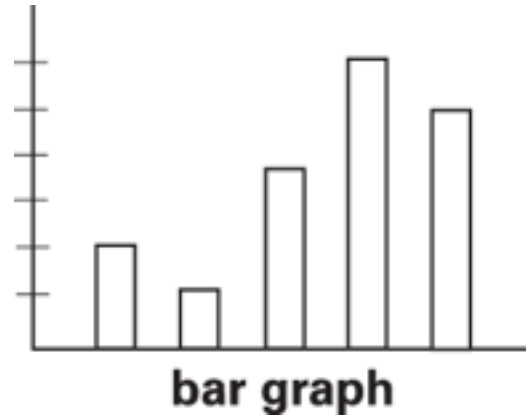


In 1995, 113 boys and 87 girls had internet at home. The next year, 1996, the numbers increased dramatically, where 179 boys and 161 girls used the internet. In 1997 it continued to increase with 242 boys and 224 girls using the internet. After 1998 it continued to slowly increase and by 2002 317 boys and 325 girls used the internet.



BAR GRAPHS

- used to compare the amounts or number of times something happens



← DRAW

- Ex: different types of birds in an environment



LINE GRAPHS

- used to show how something changes over time by connecting points on a graph.



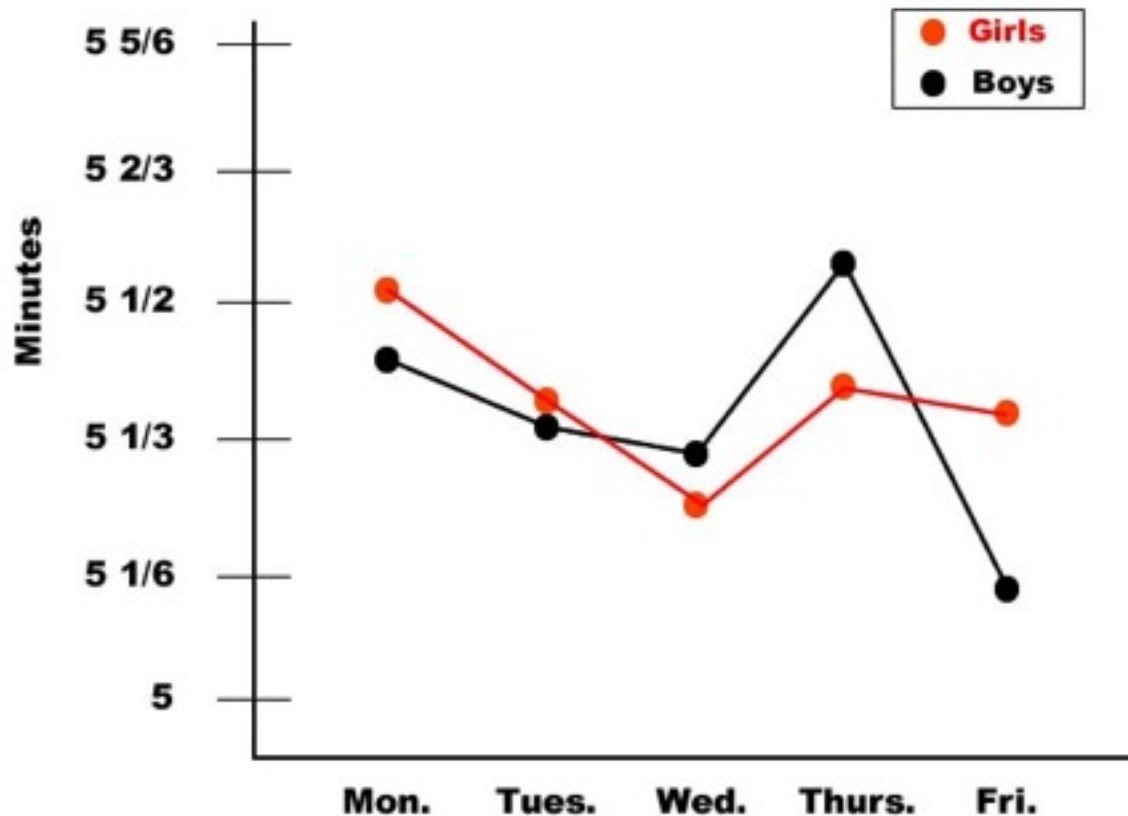
← DRAW

- Ex: How weight changes over time

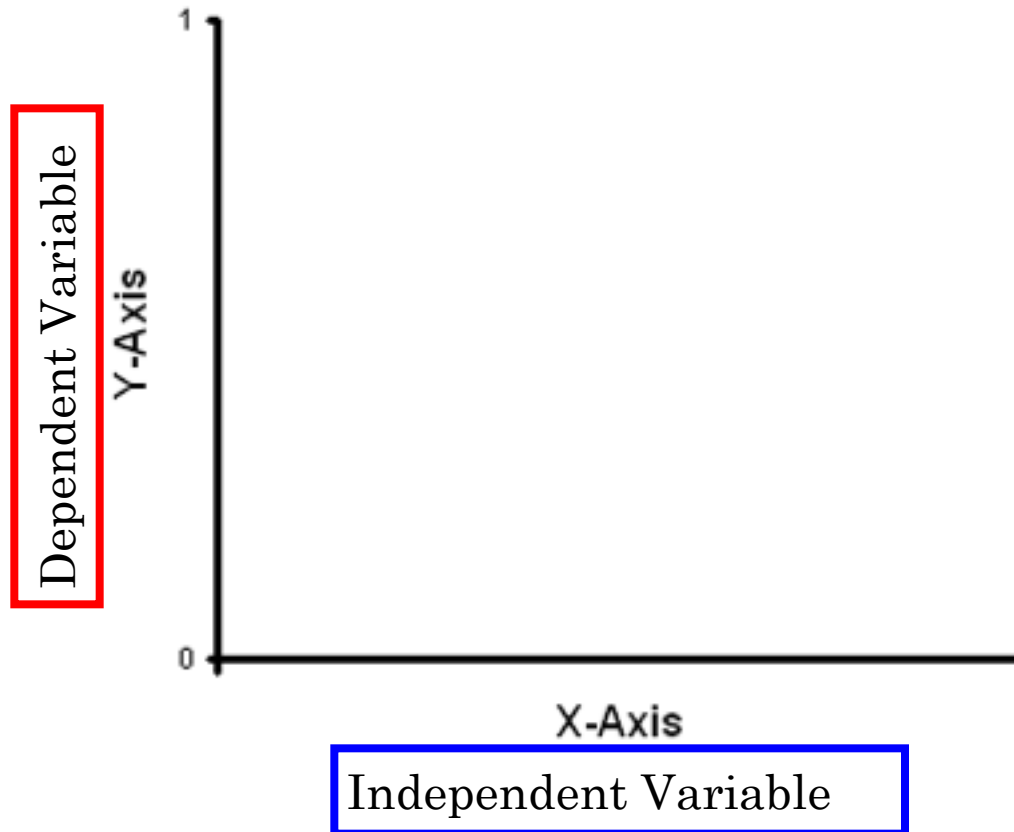


GRAPH WITH MULTIPLE DATA SETS

Average Speeds for Running the Mile at Taylor Middle School for Boys and Girls on the Cross Country Team



TYPICALLY, THE **INDEPENDENT VARIABLE** IS PLOTTED ON THE X-AXIS AND THE **DEPENDENT VARIABLE** IS PLOTTED ON THE Y-AXIS.



WHEN MAKING A GRAPH FROM YOUR DATA, ALL GRAPHS:

- Must have a title
- Must have x (horizontal) and y (vertical) axes that are labeled
- Have an equal distance between each number and use 75% of the axes.
- Must have a key if using more than one data set





Brainwork

Left page

Answer the essential question(s)

Observe the data

Pick the appropriate graph and graph it.

Include all labels

Month	# Deer
<i>Sept</i>	<i>38</i>
<i>Oct</i>	<i>32</i>
<i>Nov</i>	<i>26</i>
<i>Dec</i>	<i>20</i>
<i>Jan</i>	<i>15</i>
<i>Feb</i>	<i>12</i>

NOTES SUMMARY

Right Page

Data is/are _____. It is displayed in _____. There are two types of data.

Qualitative data is _____.

Quantitative data is _____.

For ease of use data can be displayed in _____ graphs and _____ graphs. The x-axis is the _____ variable and the y-axis is the _____ variable. All graphs should contain _____.

