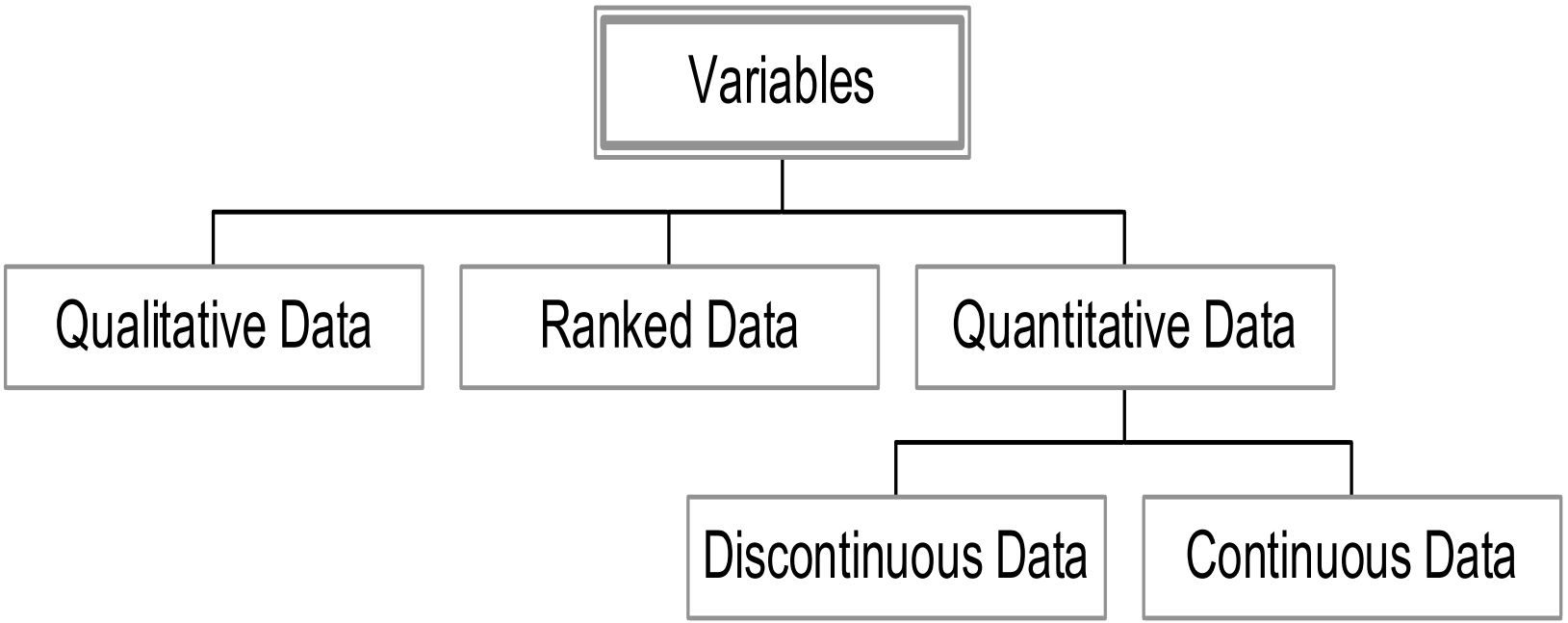

Variables
Qualitative Data
Ranked Data
Quantitative Data
Discontinuous Data
Continuous Data

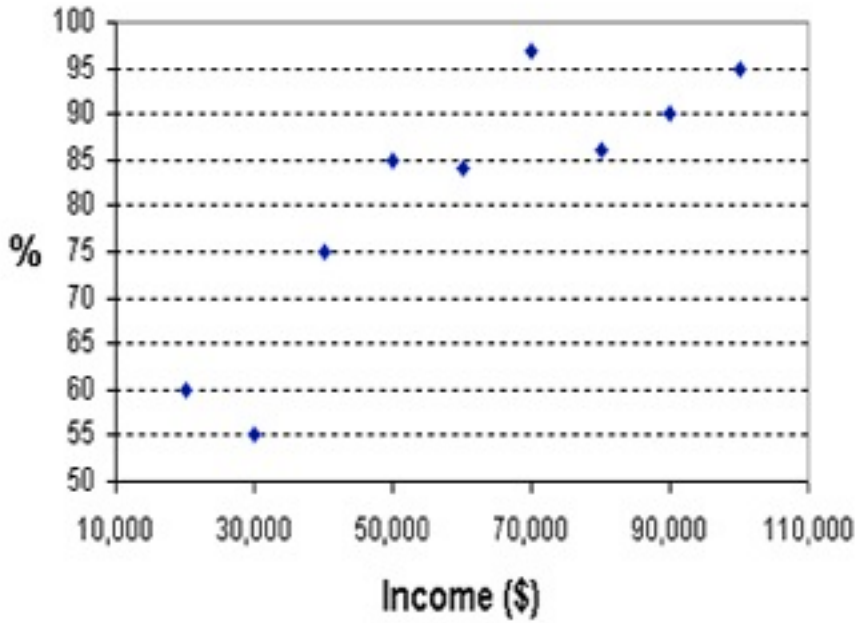
Collecting Data

- Ranked: ordered or scaled data
- Quantitative: measurements or counts
  - Discontinuous: whole numbers
  - Continuous: non whole numbers
- Qualitative: non numerical, descriptive
  - Sex, color, presence of…

Graphs

- SCATTER GRAPH
  - No independent variable
  - Points are not connected
  - Use of a “best fit” line
  - Data must be continuous for both variables
  - Helpful in determining relationships between variables

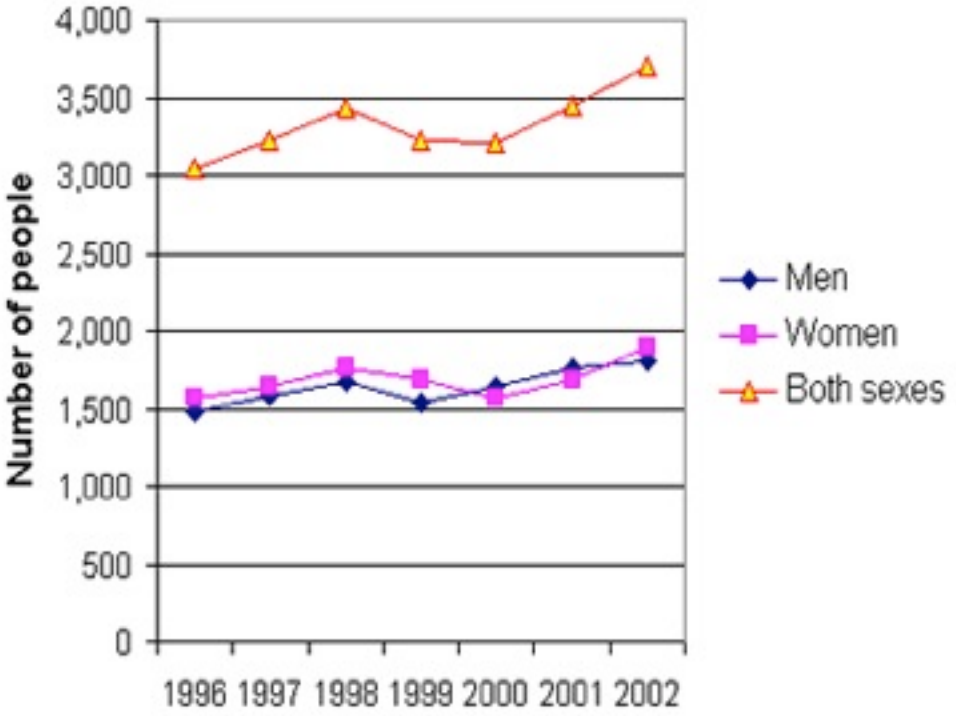
- Scatter graph



Graphs

- LINE GRAPH
  - Used when one variable (independer effects another varia (dependent)
  - Data must be continuous for both
  - Connect the dots or a best fit line

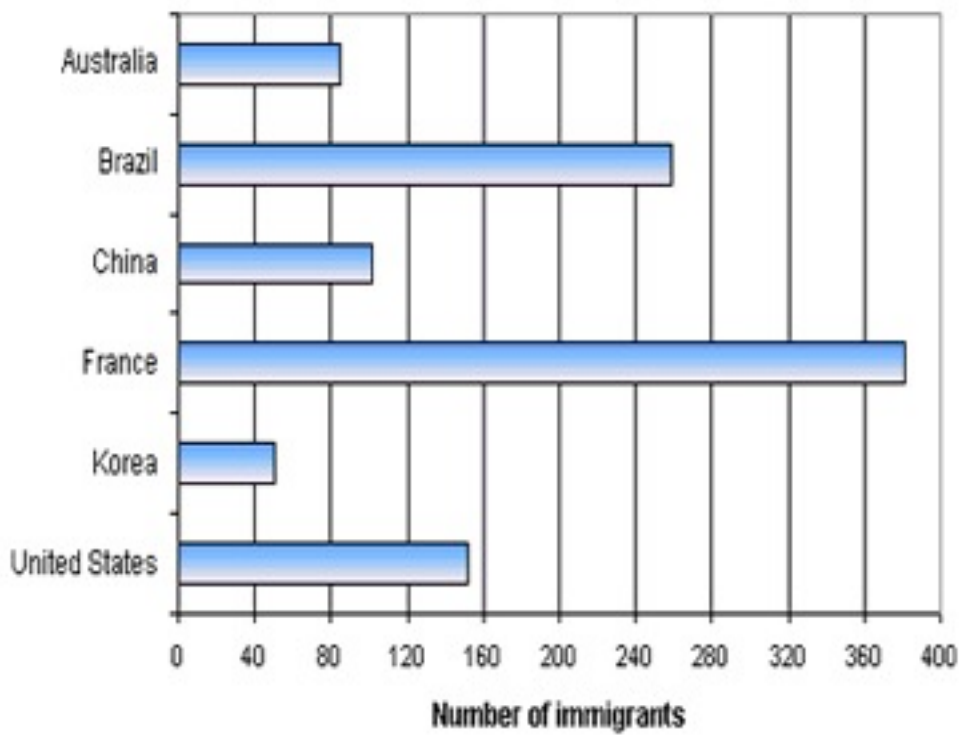
- Line Graph



Graphs

- BAR GRAPH
  - Non numerical data and discontinuous data for at least one variable
  - No independent and dependent variables

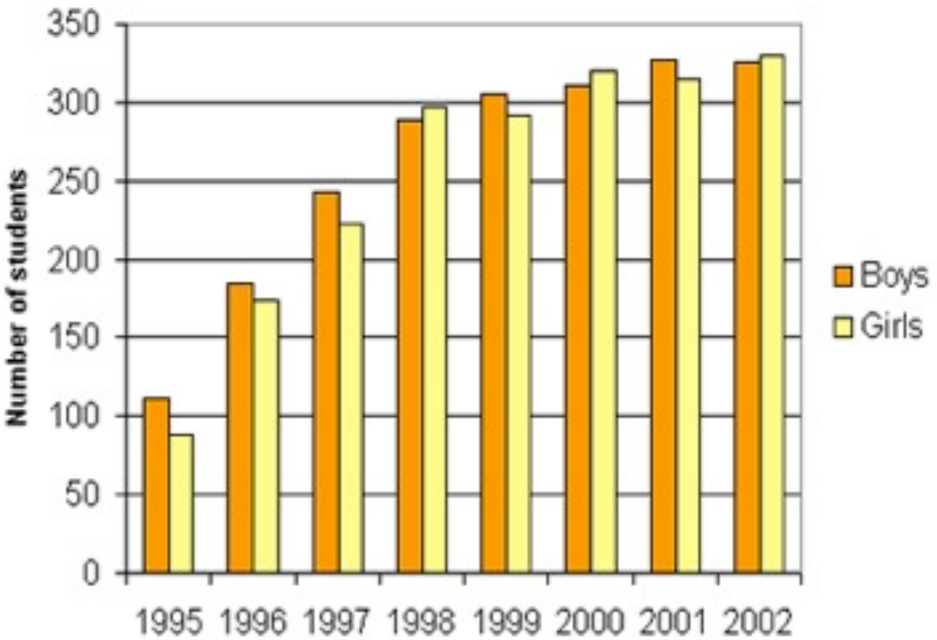
- Bar graph



Graphs

- HISTOGRAMS
  - Plots continuous data against a frequency of occurrence
  - X axis is class interval
  - Y axis is frequency interval
  - *Column graphs are the same except data is discontinuous therefore bars will not touch

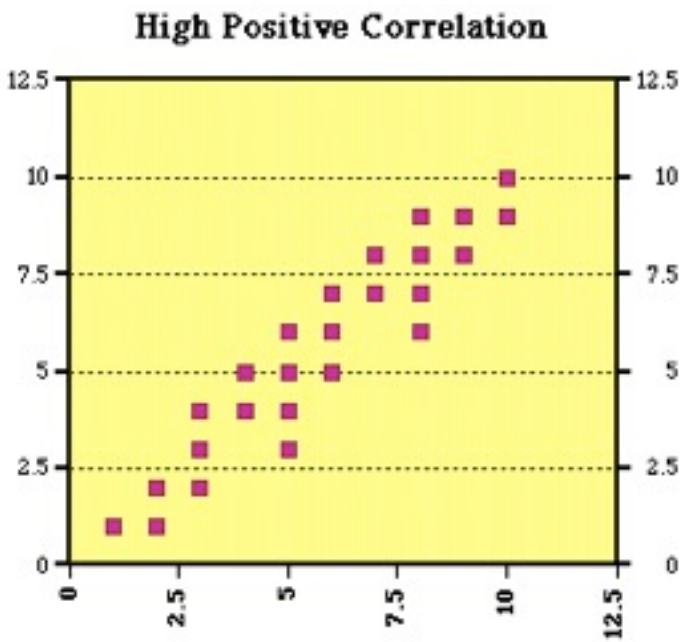
- Column graph



Correlations

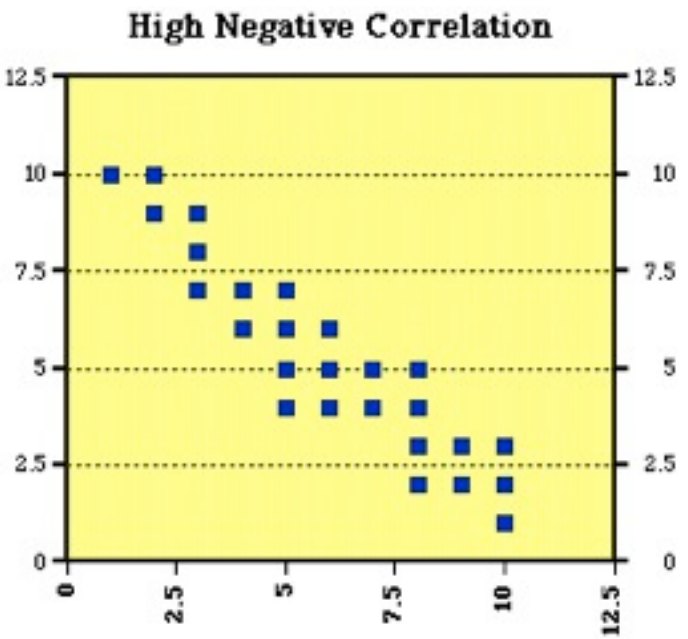
- Positive or Direct Correlation
  - One variable increases or decreases with another variable

- Draw Best Fit Line



Correlations

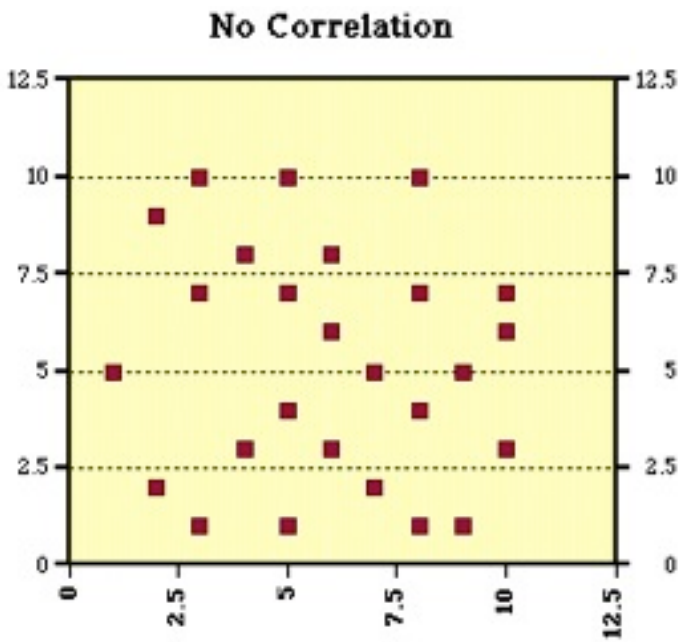
- Negative or Indirect or Inverse correlation
  - As one variable increases the other decreases and vice versa
- Draw Best Fit Line



No Correlation

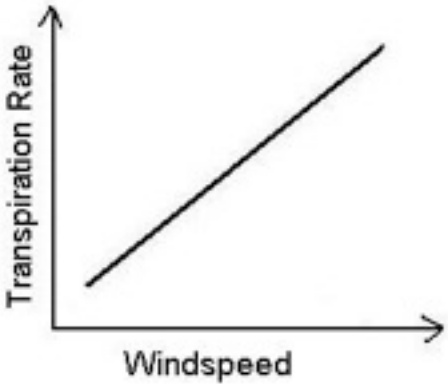
- No correlation exists when plots are randomly distributed throughout the graph
  - Best fit lines are not possible

- No Best Fit Line

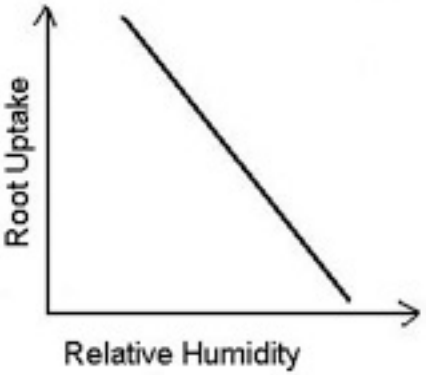


Graph Interpretation

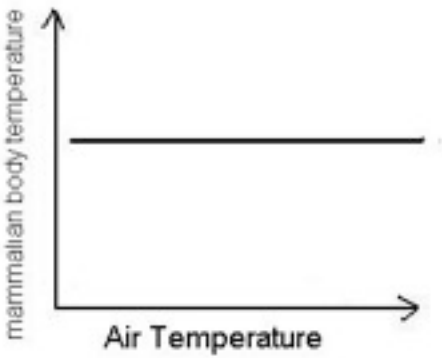
Transpiration Rate vs. Windspeed



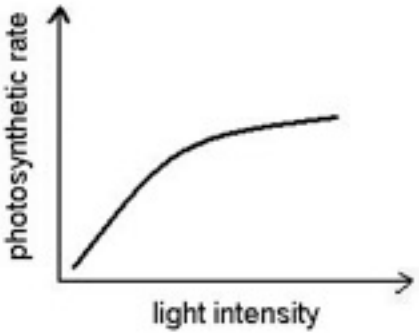
Root Uptake vs. Relative Humidity



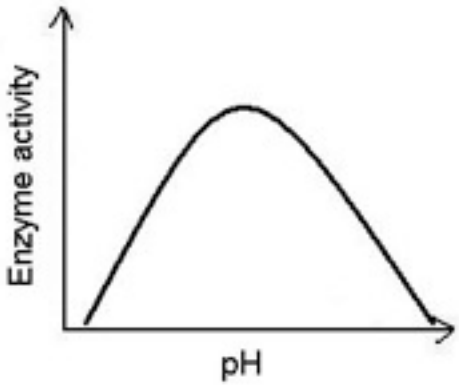
Body Temperature vs Air Temperature



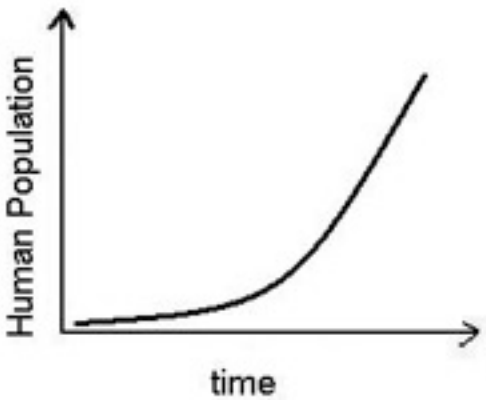
photosynthetic rate vs light intensity



Enzyme activity vs. pH



Human Population number vs. time



Analyzing Data

- Mode
  - The data that occurs most frequently
- Range
  - The difference between the lowest and highest data
- Mean
  - Numerical average
    - Add all data and divide by the number data points
- Median
  - The middle data value
    - Rank the data from low to high
    - If data set has an even number of data then the median is the average of the the two middle data

Analyzing Data

- Standard Deviation
  - measure of distribution of scores
  - computed by
    - **calculating the deviation of each score from the mean**
    - **squaring those deviations**
    - **finding their average**
    - **finding the square root of this average**