

Graphical Displays For Distributions

- Qualitative Variables**

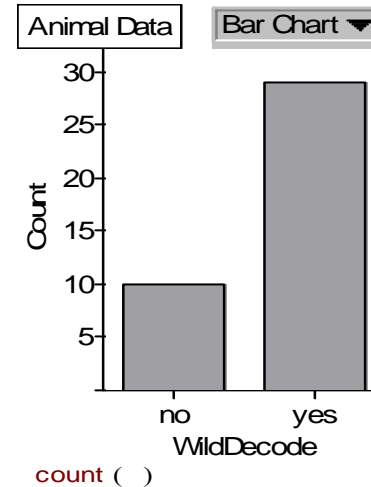
Bar Graphs

- For displaying categorical data
 - Category on the horizontal (usually) axis
 - Frequency Bar Graph - Frequency (Count) on the vertical axis
 - Relative Frequency Bar Graph - Relative Frequency on the vertical axis

Frequency Bar Graph

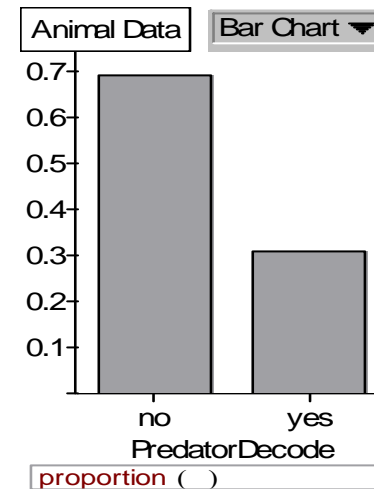
- Category on the horizontal axis
 - Label each bar below the bar
 - Label the horizontal axis with the name of the variable

- Frequency on the vertical axis



Relative Frequency Bar Graph

- **Category on the horizontal axis**
 - Label each bar below the bar
 - Label the horizontal axis with the name of the variable
- **Relative Frequency on the vertical axis**



Bar Graph

- **Category on the horizontal axis**
 - Label each bar below the bar
 - Label the horizontal axis with the name of the variable
- **Bars**
 - Space between the first bar and the vertical axis
 - Space between the bars - same amount
 - All bars have same width

Bar Graph

- **Vertical Axis**
 - **Frequency Bar Graph** - Frequency on the vertical axis
 - **Relative Frequency Bar Graph** - Relative Frequency on the vertical axis
- **Scale**
 - **Tick marks with numerical labels**
 - ◉ Reasonably equally spread
 - ◉ Common measure - for example, by 2's, by 5's, by 10%, ... whatever is most appropriate

Pie Chart

- Sectors of circle represent the Relative Frequency of the values of the variable
 - Label each sector with the Relative Frequency, in percent

Pie Chart

- Sectors of circle represent the Relative Frequency of the values of the variable
 - How do we determine the size of the sectors???

Pie Chart

- Sectors of circle represent the Relative Frequency of the values of the variable
 - How do we determine the size of the sectors???
 - Multiply the relative frequency by 360 degrees to determine the degree measure for each sector

Pie Chart

- Sectors of circle represent the Relative Frequency of the values of the variable
 - Label each sector with the Relative Frequency, in percent
 - ◉ Multiply the relative frequency by 360 degrees to determine the degree measure for each sector

Graphical Displays

- Helpful for “viewing” data
- Overall “picture” of the data
- Relationship between
 - frequencies
 - relative frequencies

Bar Graph

- Two types: *Frequency Bar Graph* and *Relative Frequency Bar Graph*
- Two Axes
 - Horizontal Axis: the variable you are examining
 - Label the axis with the name of the variable
 - Vertical Axis: Frequency or Relative Frequency
 - Need scale: equally spaced tick marks with corresponding values
 - Label axis as "Frequency" or "Relative Frequency, in percent"

Bar Graph

- Two types: *Frequency Bar Graph* and *Relative Frequency Bar Graph*
- Bars
 - Equal width
 - Space between the vertical axis and the first bar
 - Equal spacing between the bars
 - Label each bar with the corresponding variable value below the bar
 - Do NOT label the bars with the corresponding frequency or relative frequency

Pie Chart

- **No Axes**
- **Full Face of a Circle - no side views/angles**
- **Sectors of circle represent the Relative Frequency of the values of the variable**
 - **Multiply relative frequency by 360 degrees to determine the degree measure for the sector**
- **Size of the sectors of the circle correspond to the relative frequencies of the corresponding variable values**
 - **Label each sector with the value of the variable**
 - **Label each sector with the corresponding Relative Frequency, in percent**