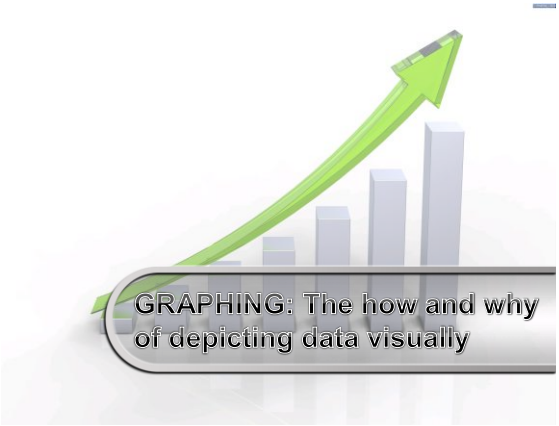


Objectives

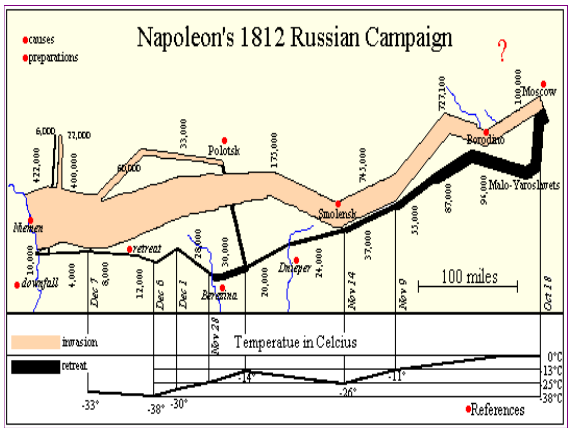
- Understand accepted graphing conventions (e.g., the three-quarters rule).
- Be able to construct different types of graphs and understand when each is most appropriate for the data given.
- Use common software applications to create graphs.

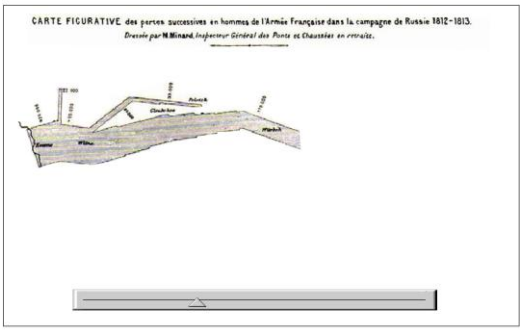
Basic Terms

- Graph: A visual representation of numerical information
- X axis – abscissa (horizontal)
- Y axis – ordinate (vertical)
- Skew

What does Napoleon have to do with graphing?

On the next slide, you will see a graph. Based on this image, can you piece together the fated story of Napoleon's 1812 campaign?





General Suggestions For Graphing

- Think about what you are trying to communicate
- Show trends, not detail
- Use a consistent format with a series of graphs
- Follow the "¾ Rule"

General Suggestions For Graphing

- Minimize chart junk
- Use 2-dimensional graphs
- Always begin y axis at 0
- When common sense dictates, VIOLATE THESE RULES!

Line Graph

- Used to show change over time
  - DV on y-axis
  - Continuous IV on x-axis

Graph on next slide

Frequency Polygon

- Depicts frequencies of discrete numeric data
  - Frequency on y-axis
  - Scores on x-axis

Graph on next slide

Relative Frequency

- Compares two groups of different sizes based on percent frequency
  - Based on % frequency column

Graph on next slide

Skew (positive and negative)

- Freq on y-axis and scores on x axis
- Normal curve
  - Positive skew
    - Scores cluster to the left
  - Negative skew
    - Scores cluster to the right

Graph on next slide

Bar Chart

- Summarizes nominal data
  - One axis represents categories
  - Other axis represents frequency or %

Graph on next slide

Histogram

- Used for discrete, numeric data
  - Each bar = data point
  - Touching bars = sequential relationship
  - Why not continuous data? Many data points low frequency

Graph on next slide

How many bars are too many? How many colors?

Stem-and-Leaf Plot

- Summarizes numeric data
  - "Stems" aligned in first column
  - "Leaves" attached to second column

Stem	Leaves
2	9
3	3 5 5 5 6
4	0 4 4 4 6 7
5	0 0 6 7 7 7 8
6	0 0 5 5 6 6 7
7	0 0 8 9