

Displaying Quantitative Data

Numerical data can be visualized with a **histogram**. Data are separated into equal intervals along a horizontal axis, tally the frequency of data in each class and build rectangles over each interval whose heights measure the frequency (or, rather, the relative frequency = proportion) of data in each class.

[TI83: STAT Edit, STATPLOT, ZoomStat, and Window settings.]

A quicker way to display numerical data by hand is with a **stem-and-leaf display**. All but the rightmost digit (or digits) of the measurement become **stems**; stems head rows in which the remaining digit(s), the **leaves**, are listed, carefully lined up in columns. (List all intermediate stems, even if they contain no leaves.)

Describing Numerical Data: Features of Interest

- Where is the **center** of the distribution located?
- How much **spread** is there in the distribution?
How tightly are data clustered about the center?
- Is there more than one **peak**, or **mode**? (The location of modes can change as the scale of a display is altered.) Is the data **unimodal**, **bimodal**, **multimodal**?
- Is the distribution **uniform** (flat), indicating that every value is (roughly) equally represented? Is it roughly **symmetric**, with values on either side of the center equally frequent? or is it **skewed** (to the left or right, in the direction of the **tail**)?
- Are there any **outliers** (values located far from the center)? Can we explain them?

Data that tracks the change over time of a particular characteristic is called a **time plot**. Time is measured along the horizontal axis and the characteristic of interest along the vertical. Connecting data points highlights the variation over time.

[TI83: STAT Edit, STATPLOT, ZoomStat.]