

Lesson One: Measures of Central Tendency

We often use the word "average" to describe what measure we might normally expect in a given situation.

"The average weight of a baby is about 7 or 8 pounds."

"My bus is usually an average of 10 minutes late."

Averages don't describe extremes, averages describe the "middle" of a set of numbers.

In Statistics, averages are called **measures of central tendency**. We will start the unit by examining three measures of central tendency: **mean**, **median**, and **mode**. None of these statistics is good in all cases; each one describes the "middle" or "average" in a different way.

Mean

What most people call "the average" is actually a statistic called the **mean**.

To calculate the mean we **add up (find the total of) all of the scores** and then **divide by the number of scores**.

Symbol for mean is \bar{x}

Example 1

Find the mean temperature for 8°C, 14°C, 6°C, 10°C, and 0°C.

$$\text{Mean} = \frac{\text{TOTAL OF ALL SCORES}}{\text{Number of Scores}}$$

$$\text{mean: } \bar{x} = \frac{8 + 14 + 6 + 10 + 0}{5} \Rightarrow \frac{38}{5} = \underline{\underline{7.60^\circ\text{C}}}$$

Example 2

Find the mean weight for the baby weights shown below. (All weights in ounces.)

120	112	114	97
141	137	115	109

$$\bar{x} = \frac{\text{sum of all data}}{\text{number of data}}$$

$$\begin{aligned} \bar{x} &= \frac{120 + 112 + 114 + 97 + 141 + 137 + 115 + 109}{8} \\ &= \frac{945}{8} \Rightarrow 118.13 \text{ ounces} \end{aligned}$$